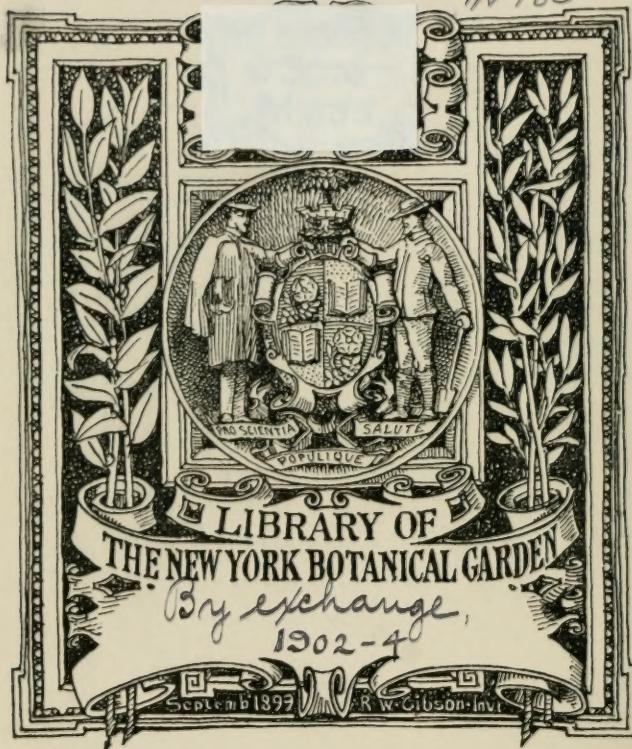
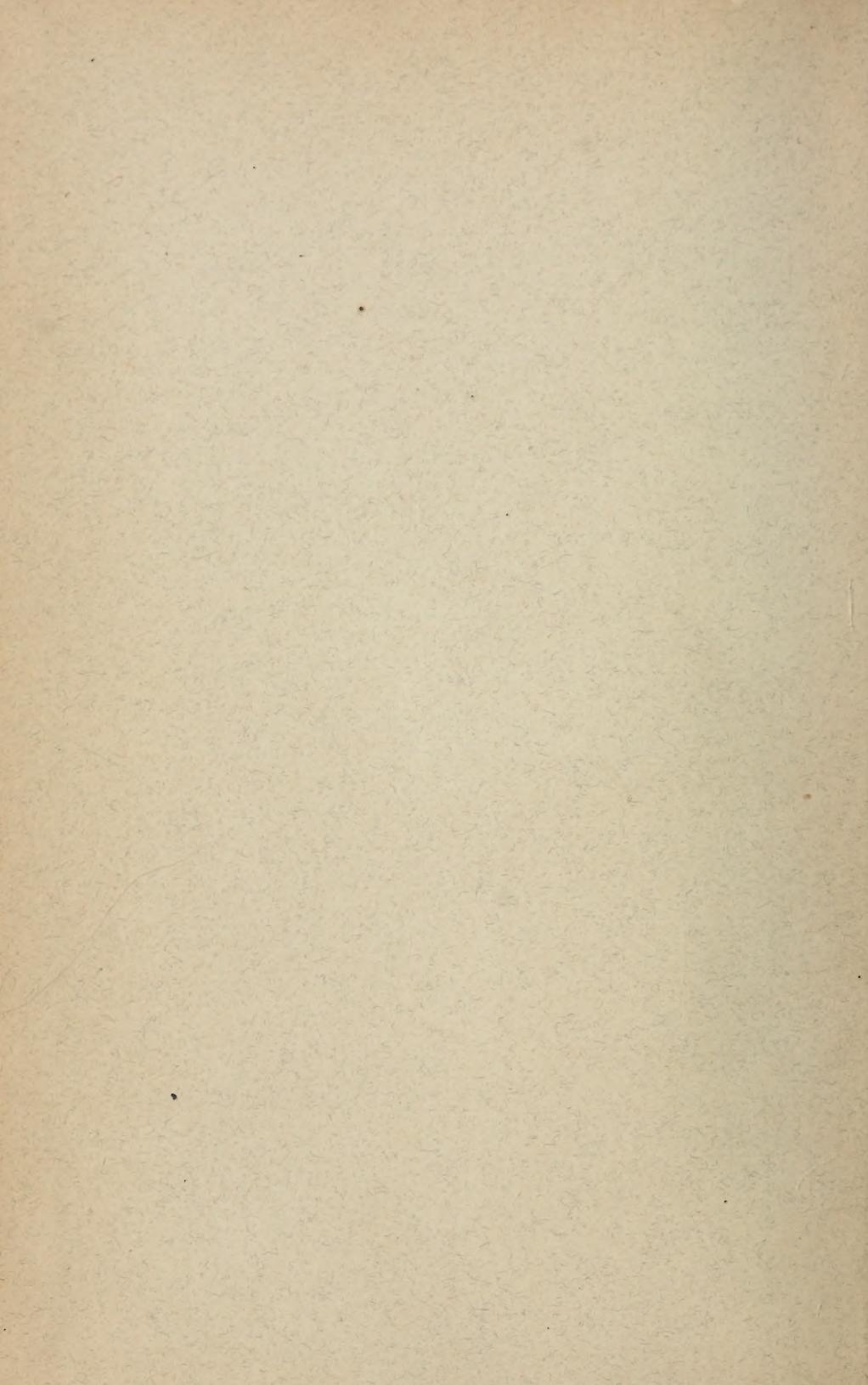


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N 785





THIRTY-FIRST ANNUAL REPORT

OF THE

State Horticultural Society

OF

MISSOURI.

1888.

THIRTY-FIRST ANNUAL MEETING HELD AT NEVADA, DECEMBER 5, 6 AND
7, 1888, ALSO,

SEMI-ANNUAL MEETING HELD AT OREGON, JUNE 5, 6 AND 7, AND
OTHER PAPERS.

L. A. GOODMAN, Secretary, Westport, Mo.



JEFFERSON CITY, MO.:

TRIBUNE PRINTING COMPANY STATE PRINTERS AND BINDERS.

1889.

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1888.

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GARDEN

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XA
N 785
v. 31
1889

MISSOURI STATE HORTICULTURAL SOCIETY.

To His Excellency, DAVID R. FRANCIS :

The report of our work, of the moneys expended and of the local societies organized by our society for the year 1888 is respectfully submitted.

L. A. GOODMAN, Secretary,
Westport, Mo., 1889.

CITY OF JEFFERSON, MARCH 27, 1889.

To the Commissioners of Public Printing:

I require for use of Horticultural Society 3,000 copies of Report of State Horticultural Society, 2,000 copies bound in cloth, 1,000 in paper, which I desire printed as per accompanying sample.

Respectfully,

LOWELL A. GOODMAN,
State Secretary.

Approved :

A. A. LESUEUR, Secretary of State.

J. M. SEIBERT, State Auditor.

ROBT. McCULLOCH, Register of Lands.

} Commissioners of Public Printing.



MAJ. Z. S. RAGAN, Independence, Mo.

OFFICERS ELECTED FOR THE YEAR 1889.

President,

J. C. EVANS, Harlem.

Vice-President,

N. F. MURRAY, Elm Grove.

Secretary,

L. A. GOODMAN, Westport

Treasurer,

D. S. HOLMAN, Springfield.

LIST OF HONORARY MEMBERS.

George Hussman	Napa, Cal.
T. T. Lyon.....	South Haven, Mich.
C. W. Murtfeldt.....	Kirkwood, Mo.
Hon. N. J. Colman	St. Louis.

LIST OF LIFE MEMBERS.

J. C. Evans	Harlem.
L. A. Goodman	Westport.
D. M. Dunlap	Fulton.

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STANDING COMMITTEES.

Orchards,

W. G. GANO, OLDEN; CHAS. PATTERSON, KIRKSVILLE; HENRY SPEER, BUTLER.

Vineyards,

G. E. MEISSNER, BUSHBURG; JACOB ROMMEL, MORRISON; C. TEUBNER, LEXINGTON.

Small Fruits.

S. MILLER, BLUFFTON; J. N. MENIFEE, OREGON; HENRY SCHNELL, GLASGOW.

Stone Fruits,

G. W. HOPKINS, SPRINGFIELD; D. F. EMRY, CARTHAGE; JACOB MADINGER, ST. JOSEPH.

Vegetables,

PROF. J. W. CLARK, COLUMBIA; W. A. SMILEY, BOONVILLE; J. A. DURKES, WESTON.

Flowers,

HANS NIELSON, ST. JOSEPH; ROBT. S. BROWN, KANSAS CITY; MRS. MARIE RODE-MYER, CENTRALIA.

Ornamentals,

PROF. M. G. KERN, ST. LOUIS; MRS. C. I. ROBARDS, BUTLER; R. E. BAILEY, FULTON.

Entomology,

MISS M. E. MURTFELDT, KIRKWOOD; DR. A. GOSLIN, OREGON; H. SHEPLEY, NEVADA.

Botany,

PROF. H. W. SPECKING, BOONVILLE; PROF. G. C. BROADAEAD, PLEASANT HILL; B. F. BUSH, INDEPENDENCE.

Nomenclature,

T. W. GAUNT, MARYVILLE; J. B. WILD, SARCOXIE; A. AMBROSE, NEVADA.

New Fruits,

F. LIONBERGER, HUGO; A. H. GILKESON, WARRENSBURG; W. P. STARK, LOUISIANA.

Ornithology,

CLARK IRVINE, OREGON; C. W. MURTFELDT, KIRKWOOD; W. H. THOMAS, LA-GRANGE.

Injurions Fungi,

B. T. GALLOWAY, WASHINGTON; PROF. W. TRELEASE, ST. LOUIS.

Packing and Marketing Fruits,

E. T. HOLLISTER, ST. LOUIS; C. C. BELL, BOONVILLE; C. THORP, WESTON.

CONSTITUTION
OF THE
MISSOURI STATE HORTICULTURAL SOCIETY.

ARTICLE I. This association shall be known as the Missouri State Horticultural Society. Its object shall be the promotion of horticulture in all its branches.

ART. II. Any person may become a member of this society upon the payment of one dollar, and membership shall continue on the payment of one dollar annually. The payment of ten dollars at any one time shall constitute a person a life member, and honorary members may be elected at any regular meeting of the society. And any lady may become a member by giving her name to the secretary.

ART. III. The officers of this society shall consist of a President, Vice-President, a Secretary and a Treasurer, who shall be elected by ballot at each regular annual meeting, and whose terms of office shall begin on the first day of June following their election.

ART. IV. The elective officers of this society shall constitute an Executive Committee, at any meeting of which a majority of the members shall have power to transact business. The other duties of the officers shall be such as usually pertain to the same officers of similar organizations.

ART. V. The regular meetings of this society shall be held annually on the first Tuesday in December, except when otherwise ordered by the Executive Committee. Special meetings of the society may be called by the Executive Committee, and meetings of the committee by the the President and Secretary.

ART. VI. As soon after each regular annual meeting as possible, the President shall appoint the following Standing Committees; and they shall be required to give a report in writing, under their respective heads, at the annual and semi-annual meetings of the society of what transpires during the year of interest to the society: Orchards, Vineyards, Stone Fruits, Small Fruits, Vegetables, Flowers, Ornamentals, Entomology, Ornithology, Botany, Nomenclature, New Fruits, Injurious Fungi, Packing and Marketing Fruits.

ART. VII. This constitution may be amended by a two-thirds vote of the members present at any regular meeting.

LIST OF MEMBERS AND CORRESPONDENTS GIVEN BY COUNTIES.

ADAIR COUNTY HORTICULTURAL SOCIETY.

(Meets second Saturday of each month.)

R. M. Brashear, President.....	Kirksville.
Charles Patterson, Vice President.....	"
W. O. Patterson, Secretary.....	"
J. W. Gill, Treasurer.....	"
J. M. Kellogg.....	Bullion.
R. B. Frisbie.....	"
L. Bartholomew.....	Kirksville.
F. M. Harrington.....	"
F. S. Northrup.....	"
H. J. Bailey.....	"
Josiah Wright.....	"
Henry J. Otto.....	"
J. W. Parker.....	"
Jno. Patterson.....	"
D. G. Jacobs.....	"
Thos. Dodson.....	"
J. S. Erwin.....	"
J. P. Claypool.....	"
Jno. Rice.....	"
M. B. Foncannon.....	"
Wm. Morrow.....	Bullion.
King Collett.....	Kirksville.
Wm. Spencer.....	"
Henry Eckert.....	"
E. A. Patterson.....	"
I. H. Pidgeon.....	Kirksville.
Wm. Orr.....	"
Wesley Leech.....	"

MISSOURI STATE HORTICULTURAL SOCIETY.

Abel Stuckey.....	Millard.
S. A. Adams.....	Sublette.
G. W. Morrow.....	Kirksville.
Jesse Hardin.....	"
J. W. Waddill.....	Brashear.
Jacob Wait.....	Laplata.
Jacob Lantz.....	Millard.
D. A. Ely.....	Sublette.
Columbus Rice.....	Sperry.

ANDREW.

Wm. Ent	Savannah.
Gtl. Segesemann.....	Amazonia.
J. Zimmerman.....	"
W. S. King.....	"
S. K. Falkner.....	Whiteville.
T. F. Miller.....	Avenue City.

ATCHISON.

Geo. Stock.....	Rockport.
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AUDRAIN.

B. F. Wild.....	Benton City.
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BARRY.

J. C. Davis.....	Cassville.
Isaac Stapleton.....	Seligman.

BATES COUNTY HORTICULTURAL SOCIETY.

Meets third Saturday of each month.

C. I. Robards, President.....	Butler.
J. B. Durand, First Vice-President.....	Prairie City.
A. C. Skinner, Second Vice-President.....	Butler.
Henry Speer, Secretary and Treasurer.....	"
O. I. Welton, Chaplain.....	"
S. N. Frederick.....	"
W. H. Holloway and wife.....	"
A. C. Skinner and wife.....	"
Wm. Wilson	"
M. Ryan.....	"
D. W. Thompson and wife.....	"
Squire Innis and wife.....	"
J. F. Boyd.....	"
H. H. Flesher.....	"
J. J. McKee.....	"
J. R. Hartman and wife.....	"

Dan McConnell and wife.....	Butler.
C. Cumming.....	"
Caleb Richardson.....	"
James Smith.....	"
T. J. Duncan.....	"
W. H. Kelley.....	"
E. P. Henry and wife.....	"
Mrs. C. I. Robards.....	"
Mrs. Henry Speer.....	"
Miss Ida Crume	"
Miss Annie Duncan.....	"
J. W. Brooks and wife.....	Pleasant Gap.
Wm. Hubbard.....	"
H. B. Francis and wife.....	Mulberry.
J. W. Hall.....	"
D. R. Braden and wife	"
S. F. McCutchen	"
J. L. Rankin and wife.....	"
S. W. Lorimer	"
Geo. F. Mitchell.....	"
J. B. Durand and wife.....	Prairie City.
Fred Fix and daughters.....	"
W. H. Ballard.....	"
David C. Forbes.....	Vinton.
Thomas Irish and wife.....	Rich Hill.
Daniel Cresap and wife.....	"
Chas. C. Darnell.....	Rich Hill.
N. H. Wieman.....	"
J. S. Rogers.....	"
Ed. F. Henry and wife	"
A. Haworth and wife	"
Abner Wix.....	"
C. W. Wilder.....	Lone Oak.
Wm. Stephens and wife.....	"
Johnson Hill.....	Virginia.
A. E. Page	Reynard.
J. M. Williams.....	"
Joel Pratt and wife.....	Hudson.
Elias Leonard and wife	"
L. M. Rich.....	"
T. D. Day.....	"
G. W. Johnston and wife.....	Sprague.
Leroy Taylor and wife.....	"
C. E. Ferguson and wife.....	"
L. Hibbs and wife.....	"
S. R. McCoun and wife.....	"
John Hornback and wife	"
J. P. Allen	"
J. B. Newberry and wife.....	Spruce.
J. M. Compton.....	"
Wm. White.....	"
H. O. Haynes and wife.....	Rockville.
Moses Wineland.....	Altona.

BARTON COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

C. H. Fink, President.....	Lamar.
M. M. Spear, Vice-President.....	"
D. B. Hayes, Secretary and Treasurer.....	"
S. G. Avery.....	"
C. H. Shepley.....	Nashville.
W. H. Thrapp.....	Milford.
R. Brown.....	Lamar.

BOONE.

Prof. J. W. Sanborn and wife.....	Columbia.
Prof. J. W. Clark and wife.....	"
Mrs. Marie Rodenmyer.....	Centralia.
H. J. Waters.....	Columbia.
J. H. Smith.....	"
W. A. Stowers.....	Centralia.
D. A. Robinet.....	Millersburg.

BENTON.

F. Schwettman	Lincoln.
W. G. Matthews.....	Fairfield.

BOLLINGER.

David L. Phelps.....	Lutesville.
L. R. Johnson.....	Patton.

BUCHANAN.

Jacob Madinger and wife.....	St. Joseph.
S. N. Cox and wife.....	"
H. T. Kelsey.....	"
N. P. Sommer and wife.....	"
J. W. Fleeman.....	"
Hans Nielson and wife..	"
L. Zaigler.....	"
W. Hafferlie.....	"
L. G. Munger.....	"
J. L. McAleer.....	"
Hon. Joseph Grubb.....	"
Chris. Diegel.....	"
J. C. Bender.....	"
W. Wiedman.....	"
H. Keene.....	"
John Hall, box 301.....	"

Karl Wiedman.....	St. Joseph.
J. Krischner and wife.....	"
Gilbert Blake.....	"
Wm. Schott.....	"
N. P. Nelson.....	Wallace.

BUTLER.

J. T. Tubb.....	Poplar Bluff.
G. W. Register.....	"
Dr. Sheldon.....	"

CALDWELL.

Wm. McCray.....	Cowgill.
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CALLAWAY.

R. E. Bailey.....	Fulton.
D. M. Dunlap.....	"
J. W. McIntyre.....	"
S. W. Holland.....	"
Dr. R. T. Murphy.....	New Bloomfield.

CAMDEN.

W. G. Brown.....	Linn Creek.
P. King.....	"

CAPE GIRARDEAU.

G. G. Kimmel.....	Cape Girardeau.
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CARROLL.

W. S. Crouch.....	Carrollton.
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CASS.

Prof. G. C. Broadhead.....	Pleasant Hill.
W. B. Mandy.....	Harrisonville.
T. J. Schatz and wife.....	Lone Tree.
C. J. Hostetter.....	East Lynne.
W. G. Downing.....	Belton.

CEDAR.

E. Liston.....	Virgil City.
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CHARITON.

G. W. Dewey.....	Keytesville.
Hon. Lucius Salisbury.....	Salisbury.

CHRISTIAN.

J. K. Weaver.....	Ozark.
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CLAY.

J. C. Evans and wife.....	Harlem,
Dan Carpenter.....	Barry.
N. Givens.....	"
Dr. J. M. Atkins.....	"
A. D. Barnes and wife	"
J. P. Wagner.....	"
J. B. Johnson and wife.....	"
Z. Todd and wife.....	Harlem.
Sam'l Dooley.....	Barry.
Chris. Schroeder.....	"
D. T. Bronaugh.....	"
Conrad Aul.....	Smithville.
T. J. Nance.....	Prospect Hill.

CLINTON.

Worley Shinn.....	Lathrop.
W. L. Culver.....	Grayson.
E. L. Pollard.....	Cameron.

COLE.

Fred. Yost.....	Jefferson City.
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COOPER.

See Central Missouri Horticultural Society.

CRAWFORD.

L. G. Grover.....	Cuba.
Dan Curtis.....	"
N. Jones.....	"

DEKALB.

E. A. Sylvester.....	Osborne.
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DADE.

Jesse Hiatt.....	Lockwood.
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DENT.

E. T. Butler.....	Salem.
W. T. Lyle.....	"

DAVIESS.

Woodruff Nursery.....	Gallatin.
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DALLAS.

S. A. Latimer.....	Town.
J. W. Shantz.....	Buffalo.
M. L. Reynolds.....	Buffalo.

FRANKLIN.

J. Bagby & Son.....	New Haven.
J. A. Trail.....	"
C. W. English.....	Sullivan,
E. E. Stines.....	Oakfield,
J. T. Perkins.....	Boles.

GASCONADE.

F. Fleischer.....	Gasconade City.
Rommel & Sobbe.....	Morrison.
Stone Hill Wine Co.....	Hermann.
Henry Henze.....	"

GENTRY.

N. C. Schultz.....	King City.
Mrs. E. B. Haven.....	Berlin.

GRUNDY.

P. H. Yakey and wife.....	Trenton.
B. F. Lehew and wife.....	"
Warren Harris and wife.....	"
Thos. Luke and wife.....	"
E. B. Cooper and wife.....	"
Jos Sibbit.....	Tindall.
P. S. Wynne	Edinburg.
John Ream.....	Trenton.
F. M. Cantwell.....	Galt.
J. Horner.....	Trenton.
S. W. Elmore.....	"
F. Dunlap.....	"
J. Wolze and wife.....	Muirton.
B. A. Barnes and wife.....	Trenton.
Wm. Donelson and wife.....	"

GREENE COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

W. E. Sheffield, President.....	Springfield.
J. Kirchgraber, Vice-President.....	"
D. S. Holman, Secretary.....	"
Henry Scholton and wife.....	"
D. S. Holman and wife.....	"
J. Kirchgraber and wife.....	"
M. J. Roundtree and wife.....	"
E. H. Lair and wife.....	"
W. H. Ritter and wife.....	"
J. M. Doling and wife.....	"

W. E. Sheffield and wife.....	Springfield,
H. H. Park and wife.....	"
R. G. Parker and wife.....	"
Prof. E. M. Shepherd.....	"
E. R. Shipley and wife.....	"
C. H. Russell and wife.....	"
L. M. Hill and wife.....	"
Jacob Bell and wife.....	"
G. F. Maitland and wife.....	"
Jonathan Moore.....	"
Geo. Sawyer.....	"
Fd. Quinn.....	"
J. B. McCullah.....	"
W. C. Freeman.....	Brookline.
John Bradford.....	Springfield.
John Alexander.....	"
G. W. Hopkins.....	"
I. R. Lane.....	"
Eddie Holman.....	"
J. M. Kelley.....	"
T. J. Roundtree.....	"
John Pearce.....	"
R. S. Nash.....	"
M. L. McClure.....	"
S. H. Epley.....	"
Wm. Schultz.....	"
W. H. Vaughn.....	"
Josiah Zink.....	"
G. F. Tippin.....	"
B. F. Fielder.....	"
Jas. Dumars.....	"
J. G. Puller.....	"
W. H. Guyon.....	"
Jos. Quinn.....	"
Fred. Mutz.....	"
C. B. McAfee.....	"
Mrs. Wade Burden.....	"
Mrs. Chas. Goffe.....	"
Mrs. Al. Demuth.....	"
Mrs. J. M. Adams.....	"
Mrs. Judge Griger.....	"
Mrs. A. I. Ross.....	"
Mrs. Jennie Prother.....	"
Mrs. Dr. Roberson.....	"
Mrs. Dr. Ross.....	"
Miss Emma Kirchgraber.....	"
Miss Rosa Holman.....	"
Miss Sudie Holman.....	"
Miss Lizzie Roundtree.....	"
Miss Julia Swarr.....	"
Miss Mollie Hopkins.....	"
Miss Ella Hopkins.....	"
H. J. Edwards.....	North Springfield.

HARRISON.

Isaac M. Neef..... Bolton.

HENRY COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday in each month.

M. G. Condon, President.....	Clinton.
M. L. Bonhan, Vice-President.....	"
J. M. Pretzinger, Secretary.....	"
W. A. Hastin, Treasurer.....	"
W. H. Roberts.....	"
H. F. Buris.....	"
G. R. Lingle.....	"
J. C. Kistler.....	"
E. G. Green.....	"
J. W. Faytor.....	"
M. F. Day.....	"
F. J. Lingle.....	"
J. A. Helman.....	"
Ed. Barnhart.....	"
John Drach.....	"

HICKORY.

Chris. Gerber..... Wheatland.

HOLT COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each quarter.

N. F. Murray, President.....	Elm Grove.
J. N. Menifee, Vice-President.....	Oregon.
W. R. Laughlin, Secretary.....	Elm Grove.
C. Hoblitzell, Treasurer.....	"
Linville Murry.....	"
George Meyer.....	Oregon.
T. J. Krech.....	"
J. W. Maple and wife.....	"
D. Barbour.....	"
John Bond.....	"
John Callow.....	"
S. Huiatt.....	"
D. Huiatt.....	"
William Brodbeck.....	"
G. F. Luckhardt.....	"
H. Holtgreve.....	"
T. C. Dugan.....	"
W. R. Vining.....	"
Dan Shultz.....	"
S. B. Lukens.....	"
Robert Montgomery and wife.....	"
Mrs. T. Smith	"

S. Blanchard and wife.....	Oregon.
T. B. Curtis	"
J. M. Howard	"
Henry Hughes.....	"
Dr. A. Goslin and wife.....	"
Clark Irvine and wife.....	"
H. A. Dankers and wife	Corning,
J. W. Davis	New Point.
N. F. Murray and wife.....	Oregon.
J. N. Menifee and wife.....	"

MOUND CITY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

D. B. Browning, President	Mound City.
G. P. Skeels, Vice-President.....	"
J. M. Hasness, Secretary.....	"
M. Houston, Treasurer.....	"
S. V. Richardson.....	"
V. Butrick	"
F. Donian.....	"
J. Dunkelberger	"
Ed. Richards.....	"
W. A. Long.....	"
J. G. Norman.....	"
I. D. Newton.....	"
W. M. Hamsher.....	"
Jacob Mumni.....	"
J. R. Brink.....	"
J. S. Kyle.....	"
E. A. Welty.....	"
M. Herron.....	"
P. P. Welty	"
Jacob Grosbeck	"
N. M. Bradley.....	"
W. H. Leitenberger.....	"
W. Holderman.....	"
M. M. Smith	"
G. R. McIntyre.....	"
J. M. Hoblitzell.....	"
W. C. Andes.....	"
T. W. Miller.....	"
J. Vandeventer.....	"
J. M. Tracy.....	"
Jas. Criswell.....	"
M. J. Bennett.....	"
W. W. Frazer.....	"
H. Walker.....	"
D. P. Porter.....	"
W. H. Paxton.....	"
F. M. Parrett.....	"
N. Browning.....	"

L. B. Felix.....	Mound City.
W. H. Drake.....	"
H. C. Smith.....	"
John Bickel.....	"
Chris. Finkman.....	"
H. R. Stewart.....	"
C. M. Mosher.....	"
C. Schultz.....	"

HOWARD.

R. T. Kingsbury.....	Estill.
A. S. Wolcott.....	Fayette.
A. McCray.....	"
Henry Schnell.....	Glasgow.

HOWELL COUNTY HORTICULTURAL SOCIETY.

Meets second Saturday of each month.

E. F. Hynes, President.....	West Plains.
J. A. Truax, Secretary.....	"
Mr. Harber and wife.....	"
Dr. H. T. Smith.....	"
H. M. Crouch.....	"
G. W. Burrell.....	Brandsville.
R. S. Hogan.....	West Plains.
W. E. Norman.....	Willow Springs.
A. Harrison and wife.....	Olden.
G. L. Sessen.....	West Plains.
W. G. Gano and wife.....	"
L. G. Atkins.....	"
S. P. Connor.....	Willow Springs.
W. R. Graham.....	West Plains.
J. D. Cole.....	"
A. S. Wright.....	"
A. G. Bascom.....	"
T. J. Shinkle.....	Burk.
J. L. Eblen.....	West Plains.
T. J. Simpson.....	"
A. A. Bishop.....	"
E. McClintock.....	"
Hayden Bros.....	"
J. T. Williams.....	"
J. E. Frazer.....	Burnham.
Mr. Truax.....	West Plains.

JACKSON.

G. Peffer.....	Independence.
L. L. Seiler and wife.....	"
L. M. Sea and wife.....	"
B. F. Bush.....	"

George J. Dod.	Greenwood.
A. J. Baker.	Westport.
C. E. Kern and wife.	"
S. E. Ward.	"
L. A. Goodman and wife.	"
J. B. Wormall.	"
F. Eslinger and wife.	"
James C. White.	"
J. A. Bayles and wife.	Lee's Summit.
M. Butterfield.	"
G. Threlkald.	Kansas City.
F. D. Adkins and wife.	"
J. W. Kidwell and wife.	"
R. S. Brown and wife.	"
J. K. Cravens and wife.	"
J. H. Lewis and wife.	Blue Springs.
William Byers.	Kansas City.
H. W. Jenkins.	Lee's Summit.

JASPER COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

Bennett Hall, President.	Carthage.
Jonathan Ames, Vice-President.	"
Z. T. Russell, Secretary and Treasurer.	"
J. E. Twitchell.	"
J. J. Williams.	"
Judge Jno. Hornback.	"
A. C. Carson.	"
N. Owen.	"
A. W. St. John.	"
P. Jackson.	"
J. B. Wild.	Sarcoxie.
J. M. Davidson.	"
H. W. Wild.	"
J. Carnahan.	"
I. N. Johnson.	Jasper.
J. D. Daily.	"
Thos. Batebennet.	Carthage.
L. C. Amsden.	"
C. A. Emry.	"
Mrs. S. M. Livermore.	"
P. Finn and wife.	"
W. C. Downs.	"
Mrs. E. M. Klein.	"
S. M. Wilson.	"
F. M. Briggs.	"
Mrs. L. Ash.	"
T. C. Apple.	"

Judge Thos. Seals.....	Jasper.
Jessie Hayden.....	Carthage.
J. R. Hill.....	"
Jas. Eastridge.....	"
Jas. Pine.....	"
F. A. Hubbard.....	"
S. Hyde.....	"
Mrs. E. M. Nevin.....	"
J. W. Towsley.....	"
J. Benjamin	"
Z. T. Clemens	"
Hon. J. Fountain.....	Carterville.
J. B. Gilbrath.....	"
W. W. Sewell.....	Carthage.
Rev. E. J. King.....	Marionville.
D. W. Allen and wife.....	Carthage.
G. T. Russell and wife.....	"
H. D. Smith and wife	"
J. Schallenberger and wife.....	"
D. F. Emry and wife.....	"
J. Ames and wife	"
B. Hall and wife.....	"
B. W. Speece.....	"
A. G. Blood.....	"
W. S. Shuler.....	"
J. A. Banks	"
J. C. Teas.....	"
G. M. Feebach.....	"
Miss Mary Emry	"
Walter Buchanan.....	"
Nicholas Siebert.....	"
Z. Freeman	Joplin.
F. A. Hazen	Dudenville.

JEFFERSON.

W. S. Jewett.....	Crystal City.
G. E. Meisner.....	Bushburg.

JOHNSON.

Prof. Geo. L. Osborne	Warrensburg.
A. H. Gilkerson.....	"
M. J. Staicy	"
W. M. Mohler.....	"
J. J. Coekrell.....	"
M. G. Mullins.....	Centerview.
Mohler & Son.....	Cornelia.
J. E. Thompson.....	Henrietta.

KNOX.

Peter Dailing.....	Baring.
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LAFAYETTE COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

Dr. W. A. Gordon, President.....	Lexington.
U. G. Phetzing, Vice-President.....	"
C. Teubner, Secretary.....	"
G. M. Catron, Treasurer.....	"
H. S. Van Anglen.....	Waverly.
John Aull.....	Lexington.
Phil. Marshall.....	"
W. M. Poge.....	"
A. A. Leseuer.....	"
Ethan Allen.....	"
Fred Neet.....	"
R. T. Russell.....	"
Zack W. Wright.....	"
James Aull.....	"
C. F. Lane.....	"
W. K. McChesney.....	"
Robt. H. Smith.....	"
Dr. J. B. Alexander.....	"
Robt. A. Hicklin.....	"
John S. Blackwell.....	"
Mrs. Florida Graddy.....	"
Mrs. M. V. Gordon.....	"
Mrs. Cerelia Thomas.....	"
Mrs. Jeannie F. Schultz.....	"
J. P. Coen, Jr.....	"
T. Green.....	"

LACLEDE COUNTY HORTICULTURAL SOCIETY.

Meets first Saturday of each month.

A. Nelson, President.....	Lebanon.
Mrs. J. G. Lingswieller, Vice-President.....	"
E. B. Kellerman, Secretary.....	"
D. R. Diffendeffer, Treasurer.....	"
A. Nelson and wife.....	"
J. G. Lingswieller and wife.....	"
I. Haskinson and wife.....	"
M. W. Serl and wife.....	"
Erwin Ellis and wife.....	"
Harry Nelson.....	"
Laura Nelson.....	"
J. M. McCombs and wife.....	"
W. I. Wallace and wife.....	"
J. M. Billings and wife.....	"
Sam Keller and wife.....	"
Homer Nelson and wife.....	"
J. L. Strain and wife.....	"
Rosa Lee Strain.....	"
Mary Strain.....	"
E. B. Kellerman and wife.....	"

Amos S. Knight and wife.....	Lebanon.
A. Lumm.....	"
James Jeffries and wife.....	"
T. L. Case and wife.....	"
J. L. Pinkerton and wife.....	"
T. L. Rubey and wife.....	"
G. W. Bradfield and wife.....	"
B. D. Dean and wife.....	"
A. R. Jones and wife.....	"
Evelyn Jump.....	"
C. C. Draper and wife.....	"
Jennie Ellis.....	"
Harrison Bowman and wife.....	"
Josie Bowman.....	"
J. M. Herndon and wife.....	"
D. R. Diffendaffer and wife.....	"
Mamie Diffendaffer.....	"
A. R. Humphreys and wife.....	"
Alf Case and wife.....	"
George Worster and wife.....	"
J. T. Talhaferro and wife.....	"
Belle Talhaferro.....	"
M. W. Johnson and wife.....	"
R. M. Hamill and wife.....	"
J. C. Wallace and wife.....	"
J. W. Wallace and wife.....	"
D. C. Wallace and wife.....	"
Bird Palmer.....	"
C. A. Bantley.....	"
Gov. J. W. McClurg.....	"
Cora Whittlesey.....	"
Susie Travis.....	"
J. D. Bonar and wife.....	"
J. W. Farris and wife.....	"
Ella Farris.....	"
Eva Wester.....	"
Kate Wester.....	"
W. D. Noel and wife.....	"
Jeju West.....	"
Ada Steinberg.....	"
J. T. Bradshaw and wife.....	"
Lyda Bradshaw.....	"
Mamie Bradshaw.....	"
L. D. Gleason and wife.....	"
Fannie Gleason.....	"
Libbie McCurdy.....	"
Abbie McCurdy.....	"
J. D. Faulkner and wife.....	"
Archie Dean.....	"
Jennie Apperson.....	"
Kittie Pierson.....	"
Ida Shumaker.....	"

Frankie Worster.....	Lebanon.
J. P. Nixon and wife.....	"
W. H. Owen and wife.....	"
H. T. Wright and wife.....	"
Harriet Sargent.....	"
Dean Martin and wife.....	"
E. B. Stratton and wife.....	"
F. H. Fertier.....	"
T. B. Burley and wife.....	"
Mr. T. A. Booton.....	"
Clara Booton.....	"
Jessie Booton.....	"
Rebecca Mustard.....	"
A. Jump and wife.....	"
C. W. Dunn and wife.....	"
R. E. McKnight and wife.....	"
Russell Todd and wife.....	"
J. F. Hogan and wife.....	"
R. J. Love and wife.....	"
H. N. Dale and wife.....	"
E. J. Sheehy.....	"
S. C. Demuth.....	"
H. D. Wedge and wife.....	"
C. Hanson and wife.....	"
L. L. Beckner and wife.....	"
Daniel Beckner and wife.....	"
E. L. Greenleaf.....	"
J. H. Fulbright and wife.....	"
Robt. Blickensdorfer and wife.....	"
M. T. Blickensdorfer.....	"
I. L. Newkirk and wife.....	"
R. P. Bland and wife.....	"
H. C. Kirk and wife.....	"
W. R. McIlwain and wife.....	"
Tom Monroe and wife.....	"
Bert Strattan and wife.....	"

LAWRENCE.

Alfred Johnson.....	Pierce City.
L. L. Allen.....	"
W. K. Irvine.....	Chesapeake.

LEWIS.

W. G. Downing.....	Canton.
E. Burrows.....	"
Frank Harlan.....	"
W. H. Thomas.....	LaGrange.
H. C. Kirschbaum.....	Tolona.
Lewis Schneider.....	LaGrange.

LINCOLN.

A. M. Shultz	Moscow Mills.
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LINN COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each quarter.)

Ralph Smith, President	Laclede,
Joseph Gamble, Vice-President.....	Brookfield.
R. W. Davis, Treasurer.....	"
A. P. Crosby, Secretary.....	"
James Hall.....	"
G. W. Martin.....	"
Danforth Chinney.....	"
W. D. Crandall.....	"
W. L. Laing.....	"
A. P. Wolverton.....	Meadville.
J. W. Turner.....	"
S. A. Field.....	"
A. P. Swan.....	Bucklin.
O. S. Fay	Boomer.
J. B. Christy.....	Browning.

LIVINGSTON.

J. W. Green.....	Chillicothe,
E. J. James.....	Dawn.

MADISON.

A. A. Blumer.....	Fredericktown,
F. Scheute	"
B. A. Cahoon.....	"

MACON.

Green Bros.....	Macon City,
J. M. Randall.....	Callao.

MARIES.

D. W. Tainter.....	Vienna,
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MARION.

Wray Brown.....	Hannibal,
W. H. Davis.....	"
J. M. Calvert.....	Warren.

MERCER COUNTY HORTICULTURAL SOCIETY.

(Meets second Tuesday of each quarter.)

R. J. Lewis, President.....	Princeton,
J. L. Ward, Vice President.....	"
J. A. Kennedy, Secretary.....	Ravenna.
W. V. King, Treasurer.....	Princeton.
O. M. Bell.....	"
Miss G. Hall.....	"
M. Earley.....	"
K. R. Wayman and wife.....	"

J. H. Burrows.....	Gainesville.
V. M. Harper.....	"
B. F. Bushong.....	Goshen City.
R. H. King.....	"
D. L. Spencer.....	Princeton.
W. A. Loe	"
S. Wayman.....	"
W. V. King.....	"
Mrs. R. J. Lewis.....	Ravenna.
Mrs. J. A. Kennedy.....	"

MILLER.

N. J. Shepherd	Eldon.
J. N. Babcock.....	Aurora Springs.
J. H. G. Jenkins.....	Olean.

MISSISSIPPI.

H. J. Deal	Charleston.
L. Danforth.....	"

MONROE.

J. D. Hawkins.....	Paris.
W. E. Flanders.....	"
Wm. Vincent.....	"

MONITEAU.

R. A. Snorgrass.....	Tipton.
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MONTGOMERY COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

F. Lionberger, President.....	Hugo.
W. Loane, Vice-President	"
F. Gutmann, Secretary.....	"
Miss F. Gutmann, Treasurer.....	"
J. Drumonds and wife.....	"
D. P. Taylor	"
Ch. Hauser	"
Ch. Laney	"
Fred Utz.....	"
M. Thornhill	"
J. S. Chapin.....	Montgomery City.
J. I. Foreman.....	"
Oliver Loane.....	Hugo.
R. H. Mansfield and wife.....	New Florence.
Geo. H. Logan.....	"
R. F. Lytle.....	"
Karl Smalzried.....	Hugo.
Thos. Logan	"
F. Kimmich	"
S. Drumonds.....	"
Hermann Willi	Montgomery City.

W. C. Price.....	Jonesburg.
Dr. Foreman	"
Geo. H. Otto.....	New Melle.
John Jeffers and wife.....	New Florence.
Henry Kohrmann, Jr.....	Americus.
Christ Grabenstein.....	Hugo.
Fred Grabenstein.....	"
Ed. Loane.....	"
Mrs. F. Lionberger.....	"
Mary Thornhill	"
Mrs. J. Drumonds.....	"
Mrs. F. Gutmann.....	"
Ella Lytle	"
Bertha Grabenstein.....	"
Carolina Utz.....	"
Fredericka Gutmann.....	"
Carolina Gutmann.....	"
Mary Drumonds.....	"

HONORARY MEMBERS.

Judge S. Miller.....	Bluffton.
J. J. Gentry.....	Big Spring.

MORGAN.

Caleb Gunn.....	Versailles.
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NEW MADRID.

C. C. Thomas.....	Pt. Pleasant.
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NEWTON.

H. Yaeger.....	Neosho.
C. A. Richard.....	"

NODAWAY.

T. W. Gaunt.....	Maryville.
J. I. Hill.....	"
E. A. Spickerman.....	"

OREGON.

Ben. Gunn.....	Alton.
S. W. Gilbert.....	Thayer.

OSAGE.

Christ Heyer.....	Byron.
Jesse Moore.....	Linn.

OZARK.

Wm. Mahan.....	Almartha.
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PETTIS.

F. G. Teubner.....	Sedalia.
Mrs. G. E. Dugan.....	"
J. H. Mousesc.....	Beaman.
Phil. Pfeiffer	Sedalia.
J. Laney.....	Green Ridge.
Ed. Brown	Sedalia.
G. H. Shepard.....	LaMonte.
F. A. Sampson.....	Sedalia.

PLATTE.

J. A. Baldwin.....	Parkville.
D. C. Knighton.....	"
J. A. Durkes and wife.....	Weston.
C. Thorp and wife	"
J. J. Blakely and wife	Platte City.
D. S. Johnson	Parkville.
W. R. Keller	Weston.
F. Hollied.....	"
G. P. Reichard	"
S. K. Graden.....	Parkville.

PIKE.

Rev. E. D. Pearson and wife.....	Louisiana.
Mrs. W. E. Jackson.....	"
T. E. Whitlock.....	"
S. C. Hassler.....	"
J. R. Fry.....	"
Stark Bros.....	"
T. J. McDonald.....	Clarksville.
M. J. Jones.....	Frankford.

POLK COUNTY HORTICULTURAL SOCIETY.

(Meetings held last Saturday in each month.)

G. W. Williams, President.....	Humansville.
P. Linley, Vice President	"
J. L. Strader, Secretary.....	"
Wm. Frey, Treasurer.....	"
I. W. Washburn	"
W. A. Moore	"
L. Bennett.....	"
Aaron Gage.....	"
S. Phillips.....	"
W. Rains	"
J. B. Warren, M. D.....	"
W. Herrall.....	"
B. Williams.....	"

PHELPS COUNTY HORTICULTURAL SOCIETY.

(Meets every Saturday on or before full moon.)

Robt. Merriwether, President.....	Rolla.
W. A. Via, Vice-President	"
W. W. Southgate, Secretary	"
T. J. Jones, Treasurer	"
R. T. Parker	{ Ex-Committee.
A. Neuman,	
O. D. Castleman,	
M. M. Case	"
Wm. Rober	"
Alex Sea.. .	"
C. D. Sanford	"
D. W. Malcolm	"
A. S. Long.....	"
R. L. Johnson.....	"
C. R. Millard	"
S. B. Rowe	"
J. D. Carpenter.....	"
T. M. Jones	"
Theo. Stimson.....	"
Jas. McClure.....	"
Wm. Shinneman	"
Ch. Rhoem	"
W. J. Powell.....	"
S. H. Hubert.....	"
J. G. Hutchinson	"
Wm. Foest	"
J. B. Sulley	"
E. W. Bishop	"
P. M. Gaddy	"
E. A. Bolles	"
H. Franz	"
E. Soest.....	"
J. W. Huffman	"
F. Huffman.....	"
R. H. Black	"
Jos. Campbell	"
E. C. Bland	"
L. F. Parker	"
Wm. Ten Eycke	"
A. Emory.....	"
F. E. Doud	"
G. Allen	"
J. Williams.....	"
W. Dawson	"
F. Mathias.....	"
G. R. Miller.....	"

PUTNAM.

J. T. Scott	St. John.
J. McAnally	Mendota.

RALLS.

R. Dalton	Saverton.
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RAY.

S. B. Beal	Vibbard.
Alex. Maitland	Richmond.

RIPLEY.

J. G. Hancock	Doniphan.
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ST. CHARLES.

Chas. Golterman	Foristelle.
C. T. Mallinckrodt	St. Charles.
C. Wenker	Augusta.
R. H. Parks	St. Charles.

ST. CLAIR.

Wm. Hook	Lowry City.
Mr. & Mrs. G. S. Allison	Johnson City.
W. H. Penix	Appleton City.

ST. LOUIS.

Sanders & Reneke	St. Louis.
P. M. Kiely	"
E. T. Hollister	"
H. Michel	"
Miss Mary E. Murtfeldt	Kirkwood.
J. P. Wagner	Florissant.
Isidor Bush	St. Louis.
Levi Chubbuck	"
J. M. Jourdon	"
Geo. H. Gill	Kirkwood.
S. M. Bayles	St. Louis.
Robt. Brent	"
W. H. Avis	"
G. Long	Pattonville.
P. W. Viehman	Central.
J. J. Keller	"
H. J. Weber & Son	Gardenville.
Henry King, 720 Garrison Ave.	St. Louis.
St. Louis Automatic Refrigerator Co.	"
Miss A. Chapman	Wellston.
Miss H. Whitney, 2907 Agnes Ave.	St. Louis.

SALINE.

J. T. Stewart.....	Blackburn.
Wm. Folck.....	Marshall.
C. M. Williams.....	Slater.

SCHUYLER.

G. W. Morton.....	Glennwood.
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SHANNON.

Jas. McKinney	Eminence.
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SHELBY.

Jas. Hanley	Shelbina.
H. G. Bruce.....	"
J. Mitts.....	Clarence.

STODDARD.

Chas. Stokes.....	Dexter City.
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TANEY.

M. J. Smith.....	Brown Branch.
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TEXAS.

J. C. White	Houston.
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VERNON COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

A. Ambrose, President.....	Nevada.
J. H. Logan, Vice-President.....	"
J. G. Kinder, Secretary.....	"
Per. Swainson, Treasurer.....	"
J. H. Donley.....	"
J. Kennedy.....	"
John W. Hickman.....	"
M. P. Manon.....	"
O. B. Nichols.....	"
M. V. B. Page	"
E. A. Hunt	"
M. C. Paterson.....	"
J. N. Edwards.....	"
V. Phillips.....	"
H. Shepley.....	"
J. A. Logan.....	"
R. W. Mitchel.....	"
C. S. McEntire.....	"
J. E. Logan.....	"
W. H. Litson.....	"

L. E. Mosley.....	Nevada,
B. F. Hatton.....	"
W. H. Parmon.....	"
F. Hall.....	"
W. W. Modie.....	"
C. Coonrod.....	"
W. A. Bucknor.....	"
E. E. Bean.....	"
W. M. Bumbarger.....	"
R. B. Speede.....	"
H. C. Swan.....	"
W. Herrick.....	"
R. W. Crockett.....	"
E. M. Cline.....	"
L. N. Kennedy.....	"
T. W. Todd.....	"
Geo. M. Kinder.....	"
L. H. Parmelee.....	"
H. A. Ensign.....	"
C. Thompson.....	"
T. T. Taylor.....	"
Jacob Faith.....	Montevallo,
O. H. P. Hastens.....	Nevada.
Wm. Comer.....	"
L. Crouse.....	"
J. D. Mitchel.....	"
J. W. Plaise.....	Wood P. O.
D. L. Woods.....	Nevada.
C. Jerval.....	"
Chas. Robinson.....	St. Louis.
Dr. E. R. Morerod.....	Schell City.

WARREN.

J. E. Yocom.....	Warrenton.
Polster Bros.....	Wright City.

WASHINGTON.

Phil Rush.....	Mineral Point.
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WAYNE.

A. Zeitinger.....	Zetonia.
Henry Griffing.....	Piedmont.
G. M. Barnett.....	"
S. A. Bales.....	"

WEBSTER.

D. N. Mitchell.....	Marshfield.
T. L. Montgomery.....	"
Geo. Lewis.....	Northview.
E. Bazley.....	Seymore.
P. Dearth.....	"

WRIGHT.

A. D. Hanks.....	Mansfield.
S. W. Anderson	Mt. Grove.
J. E. Elliott.....	Cedar Gap.

MISSOURI VALLEY HORTICULTURAL SOCIETY, KANSAS CITY, MO.

(Meets third Saturday of each month.)

J. C. Evans, President.....	Harlem, Mo.
E. Taylor, Vice-President.....	Edwardsville, Kas.
F. Holsinger, Secretary.....	Rosedale, Kas.
G. F. Espenlaub, Treasurer.....	"
F. Holsinger and wife.....	"
G. F. Espenlaub and wife.....	"
Prof. G. E. Rose.....	"
S. S. Ely and wife.....	"
S. S. Hogue and wife.....	Westport.
J. C. Dickinson and wife.....	"
L. A. Goodman and wife	"
J. C. Evans and wife.....	Harlem.
Z. Todd and wife.....	"
I. Orwick.....	"
C. Shroeder.....	"
C. E. Kern and wife.....	Kansas City
I. D. Gregg and wife.....	"
W. A. Gosnell and wife.....	"
J. K. Cravens and wife.....	"
J. W. Kidwell and wife	"
J. D. King.....	"
S. C. Palmer.....	"
Jesse Ray.....	"
J. C. Blair	"
M. Butterfield	Lees Summit.
Dan Carpenter.....	Barry.
J. A. Bayles and wife	Lees Summit.
T. L. Hogue.....	Glenn P. O., Kas.
J. A. Durkes and wife	Weston.
E. Lindsey	Westport.
Harvey Hughs and wife.....	Rosedale, Kas.

CENTRAL MISSOURI FRUIT-GROWERS ASSOCIATION, BOONVILLE, COOPER COUNTY, MO.

Meets first Saturday of each quarter.

H. M. Meyers, President.....	Boonville.
R. T. Kingsbury, Vice-President.....	Estell.
W. P. Tompkins, Second Vice-President	Boonville.
C. C. Bell, Secretary.....	"
Fred. J. Boller, Treasurer	"

John Victerl.....	Boonville.
C. J. Fiddler.....	"
Henry Dimple.....	"
H. Roberts.....	"
C. J. Ingersoll.....	"
O. Carville.....	"
L. Geiger, Sr.....	"
L. Geiger, Jr.....	"
H. Wooldridge.....	"
Joe Glahn.....	"
J. E. Elliott.....	"
Will. Givens.....	"
John Neef.....	"
Frank Neef.....	"
L. Smith.....	"
A. Walter.....	"
W. A. Smiley.....	"

FOREIGN MEMBERS.

P. Underwood.....	N. Lawrence, Kas.
E. J. Holman.....	Leavenworth, Kas.
Dr. J. Staymen.....	"
F. Wellhouse.....	Fairmount, Kas.
E. F. Stephens.....	Crete, Neb.
G. S. Downend.....	Sibley, Iowa.
E. C. Robinson.....	Portland, Maine.
Thos. Fargher.....	La Porte, Ind.
H. M. Hoffman.....	Leavenworth, Kas.
J. W. Preston.....	Blue Mound, Kas.
Perry Nixon.....	Cherryvale, Kas.
A. H. Griesa.....	Lawrence, Kas.
Sam'l Grondyke.....	Eugene, Ind.
D. J. Purdy.....	Mason City, Iowa.
Nat. Stephens.....	Forney, Texas.
J. L. Simpson.....	Tongoxic, Kas.
J. A. Sloan.....	Wakefield, Kas.
D. M. Swaar.....	Lancaster, Pa.
L. A. Garrett.....	Humboldt, Kas.
Louis Erb.....	Memphis, Tenn.
G. C. Davis.....	Bentonville, Ark.
Ben Davis.....	"
C. J. Warren.....	Black Rock, Ark.
S. W. Horner.....	Council Grove, Kas.
B. C. Warfield.....	Sandoval, Ill.
E. W. Campbell.....	Yates Center, Kas.
John Keith.....	Bakersfield, Cal.
Chas. Guild.....	Dallas, Texas.
Maj. H. Soule.....	Ann Arbor, Mich.
Emil Baur.....	"
M. B. Sturges.....	Des Moines, Iowa.
German Roth.....	Toluca, Mexico.
W. L. Pillsbury.....	Champaign, Ill.

Missouri State Horticultural Society.

SUMMER MEETING, HELD AT OREGON, UPON INVITATION OF THE HOLT COUNTY HORTICULTURAL SOCIETY, JUNE 5, 6 AND 7.

The following account taken from the *Holt County Sentinel* shows the enthusiasm of our meetings:

"The grandest event in the history of our beautiful little city was the meeting of the State Horticultural Society, which convened in this city on Tuesday evening last, and remained in session until Thursday evening. The people of Oregon and those in the county for miles around had anticipated the event for weeks, and consequently when time approached for the coming of our visitors, all our people were only happy to say, 'Welcome, thrice welcome.'

"Much interest has been manifested on the part of our people, and the various committees have been 'up and doing' their whole duty to make the stay of the visitors a pleasant one. The latch strings of our homes have been on the outside and our citizens bent on making the fruit-growers feel at home among us. Our city never presented a lovelier appearance and the skillful touches of the decoration committee only added beauty and attractiveness.

"A more suitable place in our state could not have been selected for this meeting—a city which is a veritable orchard, in a county second to none in our state for fruit growing. A large and commodious court house for the place of meeting, a lovely park covered with a beautiful carpet of blue grass, abundant shade, in the heart of the city, amidst a hospitable and intelligent people.

"The circuit court room, the place selected for the meeting, was tastefully and abundantly decorated with pictures, paper tapestry, bunt-

ing and flags, and the ladies and gentlemen of the committee did themselves and the society honor in the fine display of flowers and the beauty and harmony of the arrangement of the room. These alone could but tell the welcome visitor that our people was of a refined and intelligent class—that the town, like the people, made it a delightful place to hold the Semi-Annual Meeting of the Missouri Horticultural Society.

“Tuesday was a beautiful day and our guests began to arrive from the afternoon trains and were taken charge of by the reception committee, Messrs. Hoblitzell, Montgomery and O’Fallon, who readily assigned the visitors to their quarters. The remainder of the afternoon was passed in seeing the sights, getting acquainted and telling one another all they knew, and what they had seen while passing through the western portion of the Platte Purchase.

“Tuesday evening our cornet band opened the exercise by discoursing several excellent selections on the campus, which soon brought our people to the court house and by 8 o’clock the house was filled to overflowing with as proud a set of Oregonians as ever assembled. The room was brilliantly lighted and the decorations only added beauty and interest to the occasion.

“The fifteen windows were draped with cream cheese cloth, looped with sprigs of evergreen. From the four center columns were suspended ropes of evergreens and flowers with paper tapestry connecting with the large center chandeliers, which were trimmed with the same. The alcove was arched and draped with cheese cloth lamberquins with a band of evergreen and flowers for the border. Above the arch of the alcove was a field of blue on which in letters of white were the words, ‘Welcome Horticulturalists.’ On each side of the speaker’s stand were iron flower stands, well laden with blooming plants, among which was a blooming cactus from Mrs. Frederick’s collection—a playing spray furnishing the flowers with moisture. Pictures of fruit, scenery and stock were hung upon the beautiful white walls. On the east side wall was the following motto in red, especially dedicated to Dr. Goslin, ‘Raise Strawberries with a —— o.’ Just below this was a large bowl in which was a spoon marked ‘A Goslin’. Opposite to this on the west side wall was the following: ‘Plant Taters in the Dark of the Moon.’ On the outside of the court house, mid-way over the walk between the gate and the north entrance, was suspended a large bunting flag; from the north gate over the street was suspended the word, ‘Welcome’ in large two foot bronze letters. Another large thirty foot flag was suspended across the street from the Odd Fellows building.

The decorations were in charge of Dr. J. T. Thatcher, and a more excellent selection on the part of the society could not have been chosen. He was ably assisted by D. L. Nipher, John Greene, and the Misses Bonnie Brodbeck, Emma Roecker, Lulu Dobyns, Gracie Hinde, Mamie Fry, and Ida Pinkston.

"Mr. Evans, President of the State Society, who has held the gavel of this organization for the past fifteen years, called the meeting to order, when our 'Choral Union' sang 'Sing Praises.' This organization is composed of our best musical talent and has already earned a reputation second to none in this portion of the state, and one of which all our people are proud. Its membership consists of the following gentlemen and ladies: W. R. Hoffmann, director; C. O. Proud, D. Zachman, tenors; Mrs. Philopæno Hoffmann, Misses Gracie Hinde, Anna Spørle, sopranos; Misses Mamie Fry, Lulu Dobyns, Nettie Nies, altos; Messrs. Daniel Kunkel, J. W. Kieff, and H. E. Denny, basso; Miss Minnie Holtz, organist; Prof. John Horn, violinist.

"Reverend Roberts of the Presbyterian church of this city offered a most earnest and fervent prayer. Then the 'Choral Union' rendered the, 'Song of the Hop Pickers.'

'In behalf of the people of Oregon and of Holt County, our May or H. T. Alkire, greeted our guests in the following:

ADDRESS OF WELCOME.

Ladies and Gentlemen of the State Horticultural Society of Missouri, and Visiting Members from other Societies and States:—

In behalf of the good people of our little city, I bid you welcome, thrice welcome, to Oregon, and Holt County. It is a gratification to us to have you come amongst us, and we shall endeavor to show our appreciation of your visit by throwing wide open our doors and kindly inviting you to partake of our hospitalities. We hope that in coming to Oregon you will not expect to find a great metropolitan city with all its railroad interests and union depots, its factories employing a thousand workmen, cable cars, and electric railways—for we have no such things here—but, instead of finding a great metropolis with all these interests cen-

tered therein, we trust that you may be satisfied to view us as we are—a nice little inland, “Orchard City” of about 1,600 souls; a city surrounded by as fine a farming country as there is upon the face of the globe; a city situated in a climate as healthy as that of California; a city having educational facilities which are absolutely unexcelled by any in the northwest; a city of neat residences, beautiful parks, happy homes, and a solid business interest; a city of thrifty, honest, sober, industrious, intelligent and hospitable people. A city whose people are in sympathy with your work—aye, a city whose people are in sympathy with every work that has for its aim the enlightenment the and elevation of the human race, or the advancement of interests of any honorable business or employment. So, we assure you now, that we are in full accord with your aims; with all the laudable efforts being put forth by you in this work, and with that grand industry itself, which you have the honor to here represent.

We recognize in horticulture, one of the most ancient and useful employments; a wide field for investigation and improvement—an art school at which we could all become students with profit to ourselves. We acknowledge and concede that there is no calling known to civilized man than stands upon a higher elevation in the estimation of the people of this country than does your own; and that there is none other in which health, integrity, morality and good citizenship predominate over their opposites, in as large a ratio as they do among yourselves, and other tillers of the soil. We realize that all means of subsistence must needs come, either directly or indirectly, from the soil of the earth; and we have learned to regard the great lines of commerce, carrying the varied products of the soil to the markets of this country, not as overshadowing in importance the producing interests, but as auxiliary thereto—as the arteries of a nation conducting its life blood from part to part. A nation has two great natural sources of wealth: the soil of the nation and the brain of the nation; and it is only upon the proper combination of the two—the proper application of the powers of the brain to the thorough cultivation and intelligent nurturing of the soil, that the sustenance, the prosperity and even the life itself, of the nation must forever depend. Nature gives the mind talent but not skill—to the soil fertility but not fruit. Thought makes the mind productive, and cultivation makes the soil productive—but the two must be combined in order that the best results may follow. We need the application of thought to horticulture made more general in our state—we need a thorough waking up upon the question of the importance of this great industry to the material prosperity of our state.

—and we hail with delight your organized effort to bring about just such a desirable state of affairs as this. The more the farmer, the orchardist, the gardener, or the florist shall labor with his brain, the less he will be obliged to labor with his hands, and we hope that this organization of yours may soon be able to make us all realize that fact.

Horticulture implies perfection in methods of tilling the soil, and we should never be satisfied with any degree of proficiency in our work until that perfection is reached. The horticulturalist lives in a great laboratory, with important chemical operations constantly going on around him, and in order to combat the evil and successfully turn to useful account the good elements, he should have some knowledge of the processes of chemistry. Insects and plants are also continually around and before him; and it is important that he should understand the habits of the one and the qualities of the other in order that, on the one hand he may avoid damage, and that, on the other hand, he may secure profit. There are a great many things that the horticulturist should know in order that he may be enabled to reap the best results from his work—in fact, he should be as near all wise as it is possible for the helpless mortals of this earth to be.

As it is so necessary then for the successful prosecution of our work as horticulturists that we be thoroughly informed—that we study and investigate as fully as possible into wonders and mysteries of nature and creation—so we should be willing students, ready to gather information from every source that is open to inquiring minds; observation, interrogation, experiment and scientific investigation. Neither should we be selfish in matters of this kind, and hide our lights under a bushel; but on the contrary, when success has crowned our efforts we should inform our neighbor by what avenue that success came, and interchange ideas with him upon the various matters which concern us both—just as you of this society have met here to-day to do. It is by such means as these that we all become more enlightened upon questions concerning our business. The farmer proper has his Grange, the physician his Medical Association, the preacher his Conference, the lawyer his Alliance, the laborer his Union League—and so, it is meet that the great horticultural interests of our state should be looked after by just such an organization as this one of yours has so thoroughly proven itself to be. Organization among you becomes a mutual benefit to your state and to yourselves. “United we stand, divided, we fall,” was in years agone engraved upon the coat-of-arms of our state as the especial motto of Missourians; and that the representatives of any idea or industry must unite in order that they may

stand up against the storms of opposition and the tendencies of organization toward disintegration has been so often forcibly illustrated within the memories of us all that it must needs now be accepted as a truism. As things are constituted in this world, evil has a spontaneous growth and comes unsought, while good only comes from civilization and determined effort. We see this forcibly illustrated in the inclination of pestiferous weeds to grow in our fields and gardens to the detriment of useful plants; and in the proneness of the human race to err despite the constant efforts put forth—at least by its better element—to do only that which is right. So, if we would accomplish the greatest good in any calling we must persist in our efforts, and let reverses only stimulate us to still greater exertion. This is the only way by which we can completely revolutionize "fogyism" in the State of Missouri and convince our brothers that vegetables and fruits are just as desirable products as are hogs and corn.

Already the attention of the people in some parts of this state is being rapidly turned to horticulture—and as a permanent occupation, too—and the time is sure to come in the quite near future when all of our now unproductive hillsides will be crowded with vineyards, strawberry beds, raspberry vines, blackberry canes, currant bushes, flower beds, and vegetable gardens. Do you ask what can be done with all the enormous amount of horticultural products that will be thrown upon the market when this state of affairs come to exist? If so, the answer must suggest itself to you the moment you glance at a map of this country and note our geographical location thereon. We are situated almost in the exact center of the United States. Almost equidistant between Maine and San Francisco—between Manitoba and the Gulf. We have immediate railroad communication with all points north, northeast, west, and northwest. Our early fruits and vegetables of all kinds maturing, as they do here fully a month earlier than the same varieties mature a distance of but a twenty hours run north of us, will find a ready and permanent market there at comparatively ruinous prices to them, possibly, but certainly, at very remunerative, even enriching prices to us. And neither is this all; but just as soon as we shall succeed in producing these articles in sufficient abundance to justify the outlay, we feel sure that we can safely depend upon it, that the railroad companies will provide more efficient service and more rapid transit than we have even now, for these products to those markets which so eagerly and impatiently awaits them.

Our late fruits, such as apples and pears, always sell well in this same territory,—as they do also in Kansas, Nebraska, and other prairie states

— in fact, throughout the southwest and south — even to the Gulf of Mexico. Also, the East consumes enormously of our apple crop, and large quantities are annually shipped to England and other European countries. But a very small portion of the world, it must be remembered, is adapted to the growth of fruits, indigenous to the temperate zone, and but a comparatively small portion of this zone itself gives anything like surety to the growth of desirable fall and winter fruits. This gives us an advantage which is of no inconsiderable importance to us, furnishing us an assurance, as it does, that a market we shall always have for such products—and, within easy reach of our doors. An assurance which at once becomes a thing of great value to us, if but properly cared for at our hands.

And neither should we consider and look upon these immediately resulting financial benefits as the only matters which should be considered by us as horticulturists,—aye, or by the people generally in this country in whatever fields of labor they may be employed as the great and only desiderata of their lives. We owe our first duty, of course, to "keeping the wolf from the door;" but we owe a secondary duty to our country, and a duty which is no less, at least than third in importance, is ourselves. We all must become wearied at times from some extended struggle in combatting with the realities of life, and are sorely in need of a diversion. At such times it does us great good to go from our fields, from our counters, from our offices and from our work-shops, to those dear retreats which we have learned to call our homes ;—and there take a stroll, if seasonable, among the flower plants, along the shady paths in our yards, or through the vegetable gardens or orchards, conversing pleasantly with our loved ones, and thus diverting our minds for a while from our struggles with the world. It is but natural for us to delight in the beautiful in nature and art — to enjoy the flavor of fruits, the odors and colors of flowers, and to be attracted by the charms of music, pictures and poetry; and we should not entirely neglect and forget in our race for wealth and power, all these pleasures and natural inclinations, and force them into a condition of perverted, dwarfed and stunted growth. These things are just as necessary to our physical and mental well-being, as is that of financial prosperity to the accumulation of wealth.

But, I fear that I have already consumed too much of your valuable time—realizing, as I do, that some of you have traveled a great many miles in order that you might be here, and that you have but a limited time to stay—and realizing, furthermore, that you are here for the purpose of consulting together upon matters of concern to yourselves as horticulturists, and not for the purpose of listening to speeches— and now hoping

that your deliberations may be as satisfactory and pleasant to yourselves as we are sure they will be instructive and edifying to us, again in the name of the Holt County Horticultural Society, and in the name of the citizens of Oregon, I bid you a sincere, hearty welcome to our midst, and cheerfully extend to you the freedom of our municipality.

President Evans, in behalf of the State Society, responded in the following brief and terse language :

Your Honor, the Mayor and Citizens of Oregon:

It gives me much pleasure at this time and in behalf of the Missouri Horticultural Society, to say that I thank you for this most hearty welcome. We have not only heard your words of welcome ; but, sir, we see on every hand acts and demonstrations of the good people here that say "welcome." We have come to your beautiful and prosperous city in the great Northwest of Missouri in the Loess Hills of the famous Platte Purchase, famous once for the Indian and the game he hunted, famous now for its good people and their surroundings, and as a part of the great Northern Fruit Belt of Missouri. We come as members of Horticultural Society, representing all sections of a great and well diversified state. We come to exchange ideas with your people that we may learn of each other how better to advance and develop the interests of our calling. When we decided to come to Oregon to hold a meeting we thought it might work a hardship on those living in the east and south of the state, but realizing the great and growing importance of your section as a fruit growing region, we could not long hesitate to come.

Again thanking you for this most cordial welcome, let us strive together to make our meeting profitable to us all.

"Come With the Rise of the Lark" was rendered by the Choral Union.

Secretary Goodman announced that the government having appropriated \$15,000 for the establishment of experimental stations, and that the sum was now ready to be drawn upon, announced the following committees :

Experimental Station.—Messrs. D. S Holman, C. C. Bell, N. F. Murray, C. W. Murtfeldt and Dr. Goslin.

Fruit Exhibit at St. Louis.—Messrs. W. R. Laughlin, J. A. Durkes, A. Ambrose.

Final Resolutions.—Messrs. C. W. Murtfeldt, Charles Patterson, S. W. Gilbert.

Local Fruit Exhibit.—J. N. Menifee, L. R. Taft, Jacob Mapel; Mesdames Montgomery, O'Fallon and Bonnie Brodbeck.

Miss Anna Luckhardt, a late graduate of our normal school, was then introduced and read the following pleasing essay on

HOME.

BY MISS ANNA LUCKHARDT, OREGON, MO.

The word home is full of tender meaning. It abides in every language and is lisped by every tongue. It has a mystic power that sinks deep into memory. It is the central spot of earth, around which crystallizes the sweet or sorrowful experiences of life. The tendrils of youthful hearts, so firmly wrap themselves about the memories of home, that the lapse of years or the deadening strain of distance cannot separate them. Love is the golden cord that binds the hearts of humanity together and links the human and divine. We can easily trace the source of love to our homes. It is there that affections meet and fuse themselves into a sacred unity. The noblest impulses of our nature here receive their strongest exercise, and blending into parental sympathy create the hallowed and lasting ties of earth. Joy dwells in the word itself. Poetry encases it as a precious jewel. Sages have coined it into undying song. No other music has such power to thrill the soul as the song of "Home, Sweet Home." This wail of a melancholy soul was written in the life blood of one who, wandering in the streets of a foreign city, gazed with unspeakable yearning across the wild waste of water to the sunny south land of his childhood days."

In all well constituted minds, home is always associated with moral and social excellences. The higher men rise in the scale of being the more delicate and appreciative they are; the more refined and cultured they become, the more sacred and endearing are the domestic ties. The Arab or wild man of the forest may care but little for the domestic relations, the instinct for home is but rudely developed. But the Christian man of delicate heart and cultured mind loves home in proportion to the delicacy of his aesthetic sense and his moral worth. He knows it

is the fertile soil where best grow the seeds of morality, the garden of truth and virtue, the wholesome condition for religion and purity; and that private worth and public character are moulded within her sacred precincts.

To be happy at home should be the ultimate goal of our ambition; it should be the end toward which every enterprise tends; it should be the fragrance of social harmony and the inspiration of all labor. As has been beautifully said: "If love reign not there; if charity spread not her downy mantle over all; if peace prevail not; if contentment be not a meek and merry dweller therein; if virtue rear not her beautiful children and religion come not in her white robe of gentleness to lay her hand in benediction on every head the home is not complete." We all build for ourselves ideal homes. Let us strive to realize those ideals. Not many years ago, where now millions of happy homes rear their heads and sing praises to God, stood dense forests in whose solitary midst the tread of man was never heard, where once vast and fertile plains stretched away as far as the eye could reach toward the western mountains where earth and sky seemed to meet and things material became things ethereal, is now the scene of a great and busy people; where once wild and useless vegetation grew rank, and the poisonus serpent lurked to sting the heel of the innocent passer by, now a world of grain jostle to the caress of the prairie wind and golden harvests nod in the vernal sun; where formerly the wild flower, the seedlings of centuries—God's own beautifiers, shed their aroma, now the fragrance of the clover blossom freight the air and lowing herds breath contentment.

The music of industry resound from hill and dale and prosperity blesses the millions. These are marks of honest toil. The instinct for home so deeply planted in our nature, has called into existence these beneficent institutions and reared this mighty nation on the intelligence, morality and refinement of home.

Man was created with an instinctive love for the beautiful, a capacity and longing for the refinements of taste and feeling. With these he can fit and furnish home with forms and hues that are pleasant to the eye.

The trees climb over the ridges of hills in glittering troops to catch the first light of the morning and to wave their green banners in the glow of the setting sun. They woo the clouds from afar and make the heavens dissolve in rain when the harvest is dying for water. Flowers adorn and chasten the festivities of home with emblems of innocence and love. There is nothing in the paintings of the great masters or the most costly and elaborate decorations of architecture to be compared

with the simple grace and the perfect harmony of a flower which the poorest can cultivate in the humblest home.

Music is an accomplishment usually valuable as a home enjoyment. The purest and loftiest emotions the heart ever feels on earth are awakened by music, and the soul is wafted away to the mansions of rest upon waves of song.

If our homes are the embodiment of comfort and liberal taste, the central sun of a bright and social atmosphere amid the perfume of beautiful flowers, life will flow on in deep and untroubled serenity and joy and love reign supreme.

Professor Taft, of the State Agricultural College at Columbia, was then introduced and read a highly interesting paper on "The Value of Experimental Stations to Horticulture." The Professor showed of what value this department will be to the agriculturist and horticulturist in securing pure seed, testing of novelties in fruit, seeds, plants and scions, forestry, shade and ornamental trees. He feared the appropriation by the government would prove inadequate, but hoped that good results would come by the combining of the various departments. The letter was a highly interesting one, and on motion of Mr. Murtfeldt, the paper was referred to the committee on experimental stations.

Miss Cora Fry, the recitationist, was then introduced and recited "Farmer Brown" in her very best style. The little Miss was cheered most heartily by the delighted audience.

At the conclusion of this number, Mr. W. R. Laughlin of Elm Grove was called upon and read an amusing yet highly interesting paper on "Reminiscences." It is impossible for us to give a creditable synopsis of this excellent production. His tribute to Mr. "Smiley" Shepherd of Putnam county, Illinois, the first grower of the grape in the west, was truly a worthy tribute and the manner in which he treated the "fraud" peddler of nursery stock, showed the speaker to be "not afraid" to give his opinion of this class of "sharks."

The evening's program was closed with a violin solo by Prof. John Horn, assisted on the organ by Miss Maggie Perkins, "A Day's March Nearer Home." This was a number greatly enjoyed by the large audience and the professor won fresh laurels by the exquisite execution of this piece.

VALUE OF EXPERIMENT STATIONS TO HORTICULTURE.

BY PROF. L. R. TAFT, OF COLUMBIA, MO.

Until within the last hundred years, the art of Horticulture has at best been but an empirical one.

The gardeners were aware from experience, that certain operations were necessary, in order to produce the best results, but they knew nothing of the physiology of these plants, or of the relations which soil, moisture, and air bear to their growth.

It was not until the close of the past century that Priestly and Lavoisier pointed out their connection, and a few years later that Sir Humphrey Davy called attention to the atmosphere as a source of nitrogen for plant growth.

The results of their investigations were not generally known until Liebig in 1840, brought them to the notice of the public.

At first, of course, the teachings of Liebig were not generally accepted, a French chemist, Dumas, among others, asserting that the mineral constituents were mere accidental features of the plant economy.

Although Liebig was in error in some of his conclusions, yet all of the present methods of fertilizations are based on his assumption that for the complete development of plants, varying proportion of certain elements are required.

This period has been regarded as the beginning of a new era in the story of agricultural and its kindred arts.

Among the noted workers were Liebig, who from his own experiments and those of others, showed conclusively the relations between plants and the soil, and the importance of the mineral constituents of plants, and Boussingault, who in his laboratory, and upon his experimental farm in Alsace, worked out many important problems in plant and animal physiology.

In 1848, Sir John B. Laws, began on his farm at Rothamstead, the series of experiments which has made his name so famous.

This brings us down to 1850, when the first experimental station under government patronage was founded at Mockern, Germany, and

placed under the charge of Emil Wolf. The value of the work done here soon became appreciated, and stations sprang up all over Europe, until to-day, there are nearly two hundred—Germany alone having over fifty, with one hundred and fifty agricultural colleges, most of which are under government patronage, while others are supported by individuals and agricultural societies. Although some of these European stations engage in a general line of experiments, most of them perform only special work. Many of them are merely control stations, having in charge the supervision of the fertilizer and seed trade, in which work they save to the farmers of Europe, at a slight expense, millions of dollars annually, by preventing adulteration and securing a guaranteed quality. Others are forage stations, whose work it is to test the grasses and various forage plants, in order to learn their value on different soils and in various stations. Experiments with cattle feeding and dairying with fertilizers, and in animal and plant physiology, occupy the attention of others. For several years horticulture as a distinct art, received but little attention at the hands of the investigators.

Gradually, however, the importance of experiments in the field became recognized, and to-day, we have stations devoted to forestry and grape growing, while half a dozen devote their attention to testing and experimenting with fruits and vegetables. Most of the experiments conducted in this country up to the present time have been carried on at the so-called 'land grant' or agricultural college. Although the principal objects of these institutions, as set forth in the act of congress, which established them, is to teach, yet as it also provides for publishing the results of experiments, we may infer that it was the design of the founders, that they also conduct experiments.

Many of the colleges, either from their own funds derived from the income of the government grant, or from appropriations of their respective states, have done much valuable work.

The Missouri Agricultural College, under its present Dean, has sent out over thirty bulletins, extending over a large field of labor, which perhaps have been more quoted than any other.

They have, to a considerable extent, shaped the experiments in other states, and have done more to bring Missouri to the notice of the farming public, not only of this country, but of Europe, than anything else.

The work too has been done without the expenditure of a single dollar, either from the college or state, the ordinary receipts of the farm alone being available for this work.

Several of the states, among them, Connecticut, New Jersey, South Carolina, New York, Massachusetts, and Ohio, established stations by special annual appropriations, of from three to twenty thousand dollars.

The first three were merely fertilizer stations, but the others, in addition, furnished valuable results in the field of horticulture, stock feeding, botany, and in field experiments with fertilizers.

The passage of the Hatch Bill during the present year, giving to each agricultural college \$15,000 annually, to be used in experimental work, has greatly increased the field of usefulness of these institutions, and if the money is properly used, will enable them to be of great assistance to the farmers of the country.

Most of the states having colleges in active operation have organized the station into from five to seven departments, and placed the work of each in charge of the heads of the corresponding departments in the college, thus securing the services of specialists, who are on the ground, and are well informed as to the wants of the state.

This is of especial importance in the work in agriculture and horticulture, as a person unacquainted with the land selected for the work will not be able to lay out his plats in an intelligent manner, and a year or two would be lost in attempting to manage the land, and the crop, before accurate results would be reached.

The Missouri Agricultural College has established its station upon a plan similar to that employed in many European countries.

The officers and the work have been made distinct from the college proper. Forty acres of land have been set apart for experimental work, new buildings have been erected, new sets of tools and teams purchased, and work commenced.

While the other stations of the country have been organized from performing experiments in several lines of work, the Missouri Station, patterning after those of Germany, will confine itself to a single line of work. Selecting the corn as one of the most important crops, it has been arranged to carry out an exhaustive study of the corn plant.

With this much as introductory, let us come to the subject in hand and consider the value of experiment stations to horticulture. Nearly all of the stations of the country have organized with a Director, Agriculturist Horticulturist, Chemist, Botanist, Entomologist, Veterinarian, Meteorologist, and with a varying number of assistants.

It will be seen that with the exception of the agriculturist and veterinarian, the work of all these will be valuable to the horticulturists of the country.

The appropriation of \$15,000, when divided among all of the branches of work, will be seen to be inadequate for the purpose if the best work is to be done. After paying the director's salary, providing for the printing of the bulletins and reports and for the general expenses, hardly \$10,000 will be left for the real work of experimenting, which partitioned among the six or seven lines of work, gives hardly enough to pay the salaries of the chief workers, let alone the assistants and running expenses.

In view of this fact, most of the states, in order to answer as far as possible all calls upon them, have, as mentioned above, united the station with the college work, and have also combined several of the departments, as horticulture and botany, botany and entomology, horticulture and entomology, or even all three.

Considering the amount of money available, it would seem that this is the best plan.

THE HORTICULTURIST.

The work generally laid out for the horticulturist includes, first, seed testing. The value of this is at once apparent, and if carried out properly, will be of great importance not only to the farmer, giving him an opportunity to have his seed of corn, wheat and other grains tested, so that he may not run the risk of losing his crop on account of using worthless seed, but will be of still greater value to the horticulturists of the state, as, if it is known that the station is to test the seed, it will certainly have an influence in restraining the seedsmen from sending out old and worthless seed.

In Europe the seed trade is under the control of the experiment stations, much as is the fertilizer trade in the older states of this country, and by this work alone, millions of dollars are saved to the farmers.

Not only should their germinating qualities be tested, but the purity of the seed should be examined into. The practice of introducing "novelties," at prices much above those of standard varieties, has given rise to more or less adulteration, while, as the business is now conducted, from want of care in growing, gathering or putting up the

seed, it is next to impossible to obtain seed that is absolutely pure. If the business were under state control, the seed dealer would not only take more care to send out pure seed, but if they found that their seed was judged by its quality, they would give more attention to seed breeding and the selection of their seed stock.

Following close upon the last work mentioned, is the testing of the novelties in vegetables and fruits. Each year a long list of new varieties is sent out, and it is important that their value be ascertained, the synonyms weeded out, and that seeds, plants or scions of promising varieties be sent to approved parties in different portions of the state, who will try them on their soil and in their climate, and report to the station, whence the results can be sent out to the people. This work alone will be worth thousands of dollars to the fruit grower in the matter of the new varieties of strawberries, as they will be saved from wasting their money in buying plants at high prices, which a years trial will prove to be worthless. The conservatism of the farmer and their disinclination to receive advice from "them book fellers," will in fact be all that will limit the good that can be done.

When farmers will allow the agents to sell them Turner raspberries and Amsden peaches, as such, at one dollar each, it shows that they need enlightenment.

If the experiment station can convince the farmers of the state of the folly of buying stock, often worthless, from traveling tree agents at prices ten times as great as standard varieties can be bought for, and induce them to purchase tested varieties from the local and presumably reliable nursery, or to send direct to some well known firm at a distance, the saving to the state in this alone will be equal in one year to all that the horticultural work of the station will cost in one hundred years.

Testing of new varieties of shade and ornamental trees, shrubs, vines and evergreens, can also be made a valuable feature of the work.

The origination of new varieties, by crossing or hybridizing, or the improvement of old ones by selection and cultivation, also affords an important field of work. Implements, machinery, and various methods of preparing the soil for crops may be tested. Studies may also be made of the best methods of preparing the seed, of planting, cultivating, pruning and managing the different crops.

Although it may seem foolish to talk about using fertilizers in a state where not one farmer in a thousand makes any pretense to save and apply his stable manure, and we believe it worse than folly to advocate the use of commercial fertilizers for ordinary farm crops, except

perhaps in a special way, it does seem probable that they can be used in connection with stable manure, by the horticulturist in the production of certain crops.

In the raising of early vegetables and in fruit growing, fertilizers can be made of use. For the former, they furnish a ready supply of plant food before the plants can obtain it either from the soil or manure, while mineral manure promotes the strong, firm growth of trees and small fruits, and the development of fruit rather than leaf buds. In addition to this work a new and almost unoccupied field is open, in testing the effect of plant food of various kinds on the quality of fruits and vegetables.

The subject of forestry should receive considerable attention. Thousands of acres of waste land in the state could be planted in valuable timber trees, and would yield a far larger income than is derived from the average cultivated land of the state, and would do it with a very small outlay. The work of experimenting with timber trees and of exciting an interest in forestry from an economic standpoint, could easily occupy the attention of one man.

THE BOTANIST.

The botanist can be of service in the agricultural as well as in the horticultural work. He can test the economic value of various grasses and forage plants, study the weeds and the best methods of eradicating them, as well as the structural and physiological characteristics of plants in general, in order that knowing these, we may work in harmony with the vital functions of such as are useful to us, and in opposition when the plants are to be treated as weeds.

The work of studying the various parasitic plants also properly belongs to the botanist. The fungi and algae, although often spoken of as "insects," are really microscopic plants, which feed in, or upon the tissues of other plants and animals. They are commonly known as mildews, rusts, smuts, blights, rot, bacteria, etc. Their effects have long been noticed, and in some years they have caused untold millions of damage, but until within the last few years, their nature has not been understood.

The botanist, by studying their habits and methods of development, and learning their hosts, can intelligently recommend remedies which will do much to check their ravages.

THE CHEMIST.

The chemist will be chiefly occupied with analysis required by the work of the agriculturist and horticulturist, and in such other work as may be determined by the director. So far as the horticulturist is concerned, the chemical work required will be confined to analasys of fertilizers, and of such fruits and vegetables as his work may require.

THE ENTOMOLOGIST.

The entomologist will make a study of the beneficial as well as injurious insects, and if possible, point out remedies which will destroy the latter.

The station entomologist names and prescribes remedies for such insects as may be sent to the station, and test such insecticides and machines for applying them as come to his notice, or that his ingenuity can invent.

The great need now so far as the subject of entomology is concerned, is not to discover new remedies, but to induce the horticulturists and farmers to fight those already known, making use of such remedies as have been recommended in the past. When they can be induced to cross arms with the bugs, and engage in a "fight to the death," then will the entomologists have accomplished their purpose. It is the farmers who are backward. The agricultural press and the reports of the horticultural society and of the board of agriculture, have for years contained remedies for the destruction of the more common insects, but how many farmers make use of them?

What proportion of the farmers attempt to destroy the codling moth, although the arsenic remedies have been going the rounds of the press for seven or eight years?

With the limited means, it will be impossible to obtain an entomologist who will be able to devote his time to work in the field, but a station entomologist performing the work indicated above, and who keeps before the public the importance of fighting the pests, will be able to do a very valuable work for the farmers and horticulturists.

THE METEOROLOGIST.

The science of meteorology is so in its infancy that the predictions are only approximately correct, but if a series of observations can be made, in a few years our weather prophets will have a mass of statistics at hand from which they can draw conclusions that can be relied on, and the farmers can so regulate their work as to be prepared for rain or drought, heat or frosts.

With the stations organized in a manner similar to that pointed out, and working in the fields indicated, the horticulturists can obtain a vast amount of good from them, but the real value of experiment stations to horticulture, will depend fully as much upon the fidelity and intelligence with which the horticulturalists make use of the results of the experiments as upon the real work done by the stations.

ROADSIDE TREES.

BY W. R. LAUGHLIN, ELM GROVE, MO.

Allowing Missouri to be square, and 250 miles by 250 miles, and roads on every section line, we have within the state, more than 60,000 miles of country roads.

The matter of the trees that shall be along side of the roads is one of very great importance for the benefits they bring to the roads as lines upon which to travel, and for the refining, educating, cultivating effect they may have upon the people who pass over them, and those who live beside them.

In the state of Missouri what a variety has the country over which we travel upon our common roads.

Crowned hill top and spread out valley; slopes whose outlines mingle as we look; varied shapes and endless variety of forms; vale and intvale; mornings and evenings; lights and shadows when the sun is low; masses of woods and the too open prairie; the winding way along the ridge; the ascents and descents over the rolls, and the right lines across the river bottoms; the farm house with its orchard and its yard; the narrow wooded valley where a few yards is the measure of our vision, and the elevation from whence rivers and cities are seen and vast expanses are spread out before our eyes. The tender tints of the leaves in spring, the strong, deep greens of the foliage in midsummer and the gorgeous colors of the great massing of autumn leaves when they paint themselves for the time of their passing away.

What may not the roadsides of Missouri be made to be in the future if only the right ones of nature's trees are left standing, and millions more of trees are well chosen and planted, the right tree in the right place.

In the forests we may read the record of centuries, plainly written, to tell us which is most beautiful and longest lived; while nature's groupings around us on every hand are a wide open volume of free instruction in landscape gardening.

We have transplanted many of these forest trees and know how to handle them successfully. Our experiments and experiences with the evergreens and larches cover a period of more than thirty years. We have tried them in Missouri for a generation and have already learned them well enough to call them into use on our grounds and along on our highways.

TREES SHOULD NOT

be planted too thickly along our lines. Our roads must not be too much shaded, e'se they will not dry so soon, and we will have them muddy most of the time. The sunshine and the air must have a proper chance at the road beds.

Most of these roadside trees should be trimmed well up, so that the shining sun and moving air may do their proper work, and that the views may not be shut off. A group here on the top of this hill or

yonder in the valley; a tall growing tree or trees that shall serve as a land mark for leagues away. Low, clumpy trees clustered around long larches, tall elms, or even while it shall last, around a Lombardy poplar. Avenues along which shall be that beauty that comes of variety and contrast in size, form, shades of color and differences of leaves of all the kinds and infinite millions in number.

OUR ELMS

are of a variety of marked styles from the spreading, almost weeping, White Elm, to the tall Red Elm that sways so easily in the winter's gale, or waves its leaf laden boughs so gracefully to the passing summer breeze.

The Burr Oak with its sturdy body and its wide spread top of large leaves, the Red and the Scarlet Oaks, with their prolonged season of their own particular beauty of colors and of forms may well find many a place here and there among our wayside trees.

The Ash, beautiful, clothed or naked, should have a frequent place.

The Sugar Maple can scarcely be planted too much or in too many places.

An occasional Sycamore with its white arms, its fine foliage, and its bark that peels off for a curiosity, will be in good taste.

A few Kentucky Coffee trees are well when they will be in their appropriate place.

Wild Cherry trees, one in a place, on rich soil, will grow into beauties in a few years, and last a long time.

Chestnut trees have much to recommend them—especially the nuts they bear.

Both Black and White Walnuts may have a few places on the best soil, low down, for their fruit particularly.

The heavy, strong growing Austrian Pine, the tall, lithe, graceful and most beautiful White Pine, the Red Pine, the tall Norway Spruce, with its peculiar form, and its own beauty for the year around; the White Fir, with its silvered leaves, the Red Cedar, at home everywhere, and rarely out of place, and perhaps a few others would fill out my list of evergreens.

THE LARCHES,

especially the European Larch, sending heavenward its long, tapering body, carrying its even growth of many short limbs beautiful in its summer dress, and in its winter undress, may be either on a hill, a slope, or a valley.

There is material enough from which to preserve, or to build, vast beauty and utility all along the 60,000 miles of roads in Missouri. In

many places, for long distances the natural forest only needs to be regulated.

This spring I spent a week sixty miles north of this place in Iowa, where thirty years ago the country was an almost unbroken wild prairie.

Much, very much has been done there in planting trees along the streets and by the waysides; but the mistakes have told fearfully against what might have been. The miserable Box Elders have passed away. The Soft Maple, for this purpose is an essential failure. The Cottonwood is planted no more on road or on street; but such trees as I have named here are there to stay.

Let us remember that in this matter of trees beside the roads, we are planting or saving for generations, yes, for centuries to come.

W. R. LAUGHLIN.

MISSOURI AND CALIFORNIA FRUITS COMPARED.

MR. EDITOR:—Will you allow a common farmer to say a few common words in your most valuable paper. What I say shall be garnished with the truth and no fictitious boom.

Why is it that apple or fruit lands in Holt county or Missouri are so much cheaper than the orange or fruit lands of California? I see in their papers and learn from persons who have been there that they ask from \$500 to \$1,500 per acre for land set in orchard. I believe the apple orchard in Holt county is a better investment than an orange orchard in California. The apple is the most substantial fruit in the world. I believe "the apple is the fruit of the tree that was given to Adam for our meat." Allow me to quote Mr. L. A. Goodman, the secretary of our State Horticultural Society, who has just returned from California. I give it in his own words as it appeared in Colman's Rural World: 1st.—Their land costs a great deal more. 2nd.—The water costs as much as some of our land. 3rd.—Their markets are much farther off than are ours. Taking all in all, I am satisfied that a man can make just as much money in a good market apple orchard in proportion to the money invested here in Missouri, as he can in California. Now, this being the case, why is it that our lands are so cheap? We can raise small fruits cheaper than they can, with the exception

probably of the prune, plum and raisin grape, and we have a market here at home. What fruits we ship the railroads and express companies carry at reduced rates. We can raise all the necessities of life right here at home, while the orange belt of California has to ship a great deal of theirs from Missouri, such as hams, corn and potatoes. We can all live without oranges, but none can live without the substantials. A few years ago there were 170 car loads of apples shipped from the depot at Forest City alone. There are eleven shipping points in Holt county. Even allowing that the orange sells for a third or even a half more than our apples in our market, then compare the cost of their land, the constant labor necessary in their orchard, the wrapping their oranges each in paper and the long distance they have to ship (as there are so few used that they have to ship them, as it were all over the world,) to find a market. I say compare all this with the small amount of labor we give our orchards with a market right here at home, not over a few hundred miles away; unless they sell their oranges for more than double as much as our apples in our market, they do not realize as much as we do off our apples.

As we are nearly as far north as apples will do well and the population north and northwest of us is daily increasing, as the apple is a healthy diet, every family will use more apples every year. With the increase of consumption we will always have a market close at home though the raising may increase tenfold. I would certainly prefer a good market apple orchard in Holt county to an orange orchard in California. You can't keep oranges but a few weeks, so they have to be shipped to the commission merchant and then wholesaled to retail dealers, which adds to the cost. If they are not sold soon they rot and are sold very low. This all comes off the producer. We can take a car of apples and sell it out in almost any small town, and they will keep from six to ten months. Families and retail dealers will buy from five to a thousand bushels. In 1882, Messrs. Pope & Shawbut, commission merchants of Mankato, Minnesota, shipped forty-eight car loads from Forest City, Holt County, Missouri. They shipped fifty-five or sixty car loads from this neighborhood, all for their own trade. In 1886, the firm of Crowell & Martin, of Sioux City, Iowa, shipped thirty-eight car loads from Forest City, Holt County, Missouri; they altogether shipped sixty car loads that year from this part of the county for their own trade. Now there are about 115 or 120 car loads of apples to be disposed of by two firms alone. Now, how many cars of oranges would it be safe for them to ship in so short a time? Could they store them away and sell in the spring same as apples? I think they would be rather a mussy mssc.

About a year ago I shipped a lot of small apples to Beal & Co., commission merchants at Omaha, Nebraska. They sold for \$8 and \$9 per barrel. Men who have large apple orchards say \$100 would be a small average to the acre. In 1882 my orchard, (trees 15 years old) averaged over \$200 to the acre, (460 bushel.) I measured all my apples that year. Apples sold that year at 50 to 65cts. per bushel, so you see my estimate is not over-drawn. Since 1882 I have had three very fair crops and two very small crops, owing to four very severe winters and four very dry, hot summers, and my orchard had borne full crops in succession for ten or twelve years ; of course, all things must have rest. With as good a crop this year as in 1882 (and the prospect is equally as promising), I am satisfied that my orchard has averaged since 1882 \$100 to the acre, which would pay the interest at ten per cent. on \$1,000 ; at eight per cent. on \$1,250, and at six per cent. on \$1,666 $\frac{2}{3}$. This will bring our orchards to California prices. We will say our apple orchards only average \$50 per acre ; this will pay interest on \$500 at ten per cent., on \$625 at eight per cent., and on \$833 at six per cent. It looks to me that money could in no way be better invested than to set out orchards on our cheap lands in Holt County, since we have by experience learned what apples are the most profitable and best suited to our climate and soil. The amount per acre can be largely increased. I have it from good authority that Missouri took all, or nearly all, the largest premiums on apples at the World's Fair in New Orleans in 1884, Holt County being represented by about three barrels. At our State Meeting at Boonville last winter, N. F. Murray, of Holt County, Missouri, took first premium on largest and best collection of apples and the first premium of five best winter varieties and first premium on best new variety for market (the Babbitt), also quite a number of plate premiums. Dr. Goslin, of Holt County, also took quite a number of plate premiums. In 1886 the Kansas City Fair awarded N. F. Murray first premium on largest and best display of fruit by any one individual ; also first premium on best five winter varieties. Mr. N. F. Murray also made an exhibit of Holt County peaches at the great fruit show held in St. Louis in 1880 by the Mississippi Valley Horticultural Society ; large premiums were offered and nineteen States were represented. Michigan had a fine display of peaches made by their State Horticultural Society, but the first premium was awarded to Murray Bros., of Holt County, Missouri, and second to Michigan.

All correspondence from parties wishing to handle apples will be promptly attended to by any of our orchardists. We never had such a prospect for a large crop of apples as we have now. There are a great many young orchards just commencing to bear. California may have

the advantage in the climate, but where there is an advantage in one thing there is a disadvantage in something else. Holt County is hard to beat for good apples and fine babies. I am sitting under the boughs and beautiful blossoms of the apple tree while writing this. I wish every reader of this paper could see with my eyes the beauty of these trees while dressed in nature's full bloom, and breathe the air that is with their fragrance filled. "The learned is happy nature to explore; the fool is happy that he knows no more."—Pope.

WM. BRODBECK.

FRUITS OF HOLT COUNTY, MISSOURI.

It would require a large volume to describe in detail the fruits of Holt County, but this article will simply give the names of the principal fruits, without going into details.

STRAWBERRIES

Find this country to be their home. In fact, there are but few families that do not have an abundance of this fruit. They give quick returns, as you can put them out in the spring and the following spring you can have nice crop of this fruit, or you can put them out in the early fall and have the next spring a good crop of this tempting and delicious fruit.

The varieties cultivated here are legion, but I will name a few out of the many that might be named: Sharpless, Capt. Jack, Crescent Downing, Jesse, Bubach No. 5, Lida, Sucker State, Gandies' Seedling Prize, Bidwell, May King, Jersey Queen and many others. No man's cultivation of fruit can be complete without the strawberry. They ripen first of all the fruits, unless it is the dewberry. They are followed by the raspberry, and then comes the blackberry.

APPLES.

Apples have been raised in this county almost from its settlement. Some of the earlier settlers brought seed with them from the

states from which they came, and the first orchards of the county were mostly seedling trees.

About thirty years ago grafted trees were introduced into the county, and immediately after the war a new impetus was given to this industry.

There are hundreds of varieties in the country, but those doing best for Summer varieties are Early Harvest, Red Astrichan and Red June. Fall varieties are Duchess, Rambo, Cooper Early White, Maiden's Blush and many others. Winter varieties that do best in this country are Ben Davis, Wine Sap, White Winter Pearmain, Genetons, Willow Twigs, Rome Beauty and many others.

PEACHES

Were raised here a few years ago in great abundance, but of late the winters have been unusually severe, and the buds have been largely killed for years past, doing also great damage to the trees. Those doing best were Early York, Amsden June, Hale's Early, Heath Cling, and Crawford's Early and Late.

GRAPES

Are raised here in large quantities. Concord is the principal grape, although Agawan, Lady, Briton, Pocklington, Worden, More's Early, in fact, nearly all kinds are raised here and do well.

PLUMS.

Before the introduction of the Curculio, the plum crops were abundant, but of late years they have been much injured by this insect. We trust, however, that this state of things will not last long, as our entomologists are waging a war of extermination against them and the time is not distant when these insects will be exterminated or held in check, so that in a few years we will again have an abundance of this delicious fruit.

CURRENTS

Are among the best of fruits in an old or new country, as they come so early in the season and give return so quickly after planting. The Red and White Dutch, Red Cherry are with us are most numerous in cultivation, although other varieties are in cultivation. By having some on the north and south side of fences, their season can be prolonged for family use.

GOOSEBERRIES

Give wonderful crops here. One season we sold over thirteen dollars' worth of this fruit from a piece of ground not more than a rod square.

APRICOTS

Are among our earliest tree-bearing fruits, and sometimes give us fruit when peaches are injured by the severity of our winters. No fruitman's orchard is perfect without this delicious fruit. The tree also gives you a variety in contrast with all others that lends a charm to your place that cannot be obtained without them. No richer and nicer fruit can be raised, and, as it comes so early, never fails to give good returns to the cash side of your account.

QUINCES

Have been raised here for years past, but not in large quantities, not because they do not add to the beauty and profit of the horticulturist, but because other fruits have been pressed to the front to that extent that this fruit has been shamefully negleced.

PEARS

Have come in and much attention was given to this fruit, but of late years blight, that has so fatally blighted the prospects of so many, has had a tendency to discourage largely the raising of this fruit that can be eaten so many months in the year. Within a few years past, blight-proof varieties have been originated, and it will not be long before a new impetus will be given to this industry in this county. They always have given good returns to the fruit grower, and as we have lands in this country so well adapted to this fruit, and as the horticulturist always keeps his eye on the profits of an industry, it is apprehended that at no distant day they will be raised and sold by the car load, as are our apples, and give remunerative returns, sold north and west of us even up into the empire of Canada.

BLACKBERRIES

Do well here. The writer had, a few years ago, a small piece of ground covering but a few rods, that gave him a return of about eight bushels of berries and remained in bearing for nearly two months, where we

could get fresh berries every day. The varieties that gave such ample return (and that without cultivation) were Lawton and Kittitany. These are subject to winter kill, but other varieties have come to take their place that are perfectly hardy, and yet give immense crops of this precious fruit just before the height of our warm days begin, and thus throw out from the system that which causes summer complaints and chills. It is a sight worth seeing to look upon my blackberries now in blossom. Not a cane injured, although the winter passed was so severe. They are Snyders.

RASPBERRIES

Have been raised on my place for about twenty years past. They are Doolittles. Others have been added to these: Hopkins, Tyler and Souhegan, but none of them as yet have proven themselves much superior to the Doolittles. This fruit ripens, followed by the blackberry, that gives you fruit for about three months fresh from the canes. The raspberry follows the strawberry in ripening, and no man's fruit farm is complete without them.

You, who live in our cities, do not know the luxuries enjoyed by the farmers and horticulturists and their families. Apples have been kept in my cellar (and it is only an ordinary one) from fall until the next fall on to the following February, which would be over one year and about one-fourth of a year. We have in our cellar now (May 25) several varieties of apples in fair condition.

This article is perhaps too long, but it would certainly be uncompleted, were not the reader informed in a word why fruits do better here than almost any other place on the globe, but it can be told in a word, and that is, we have natural under-drainage. In the east, fruit can not be raised successfully and in perfection without under-drainage, and this adds enormously to the expense of fruit-raising.

STEPHEN BLANCHARD.

WEDNESDAY, JULY 6TH, 9 A. M.

The morning exercises were opened with prayer by Elder W. M. Tandy, pastor of the Christian church.

The president called for reports on orchards, and Mr. Murtfeldt, of Kirkwood, obtained the floor and urged upon the members not to forget that the work of the orchardist did not cease on the planting of trees, that after the planting many treated the orchard afterward as a secondary consideration. If they plant an orchard they should give it as much care and attention as they would any other enterprise—whatever was worth doing was certainly worth doing well. He advocates the planting of young orchards, and cited the association to the history of the newer states for results from young orchards—no state in the union had done more for the fruit interests than Kansas; her Horticultural Society. He referred pleasantly to the motto, "Plant Taters in the dark of the Moon;" he preferred to plant in the earth. In planting trees it was the proper thing to care more for the roots than the tree; dig, deep, large holes; large enough to admit the roots comfortably; cut off the lacerated ones smoothly; set the longest roots to the southwest, it gives strength and upright growth; take the best soil and build a slight mound in the center to give the roots a downward growth; recommended staking for autumn planting; twenty years he thought was the average vitality of an orchard. After a time he thought old apple trees formed a rough bark which proved a harboring place for the canker worm, which took three years to destroy; a good trowel and a man was needed to exterminate them. He found these pests to be very destructive. He gave a brief history of the codling moth, which was also very interesting. He thought the use of Paris Green and London Purple injurious to the tree, especially when used in over proportions. In spraying it will require a few years to test its practical results. He knew of no reason why Missouri could not raise as good fruit as could be found on the continent. The codling moth was the great enemy to the orchardist—though small and insignificant apparently, yet it levels orchards. Insect study should be more thorough. We should ascertain the difference between our insect friends and foes. The devil's horse, though hideous looking, was a great friend to the fruit grower, as also the lady-bug. Mr. Murtfeldt was highly interesting throughout.

Mr. Laughlin advocated cutting back or rejuvenating of old orchards, and was meeting with some success in this line; while he admitted

the best of fruit was obtained from young orchards, he believed an old orchard could be saved by cutting back to even old stubs.

Mr. Goodman thought an orchard to be profitable to the owner reached its zenith in productiveness at the age of twenty years.

Mr. Ent, of Andrew county, thought as the gentleman who preceded him, and thought the best way to trim an old orchard back was to cut it down, and thought the thorough cultivation the only true plan. He sighted a number of instances where inferior cultivation did much to injure the orchard, and the crops therefrom were fully one-third short. He believed the cause of dying out was attributable to lack of cultivation. Murtfeldt agreed with Ent.

N. F. Murray thought that the extremes of heat, cold and drought, contributable largely to the injury of the apple crop. Whenever a tree received a sudden shock from these changes it always proved more or less injurious.

Mr. Laughlin was still on the other side—he would still continue his experiments on the old orchard.

As to spraying Murray had tried white arsenic, $2\frac{1}{2}$ ounces to the 100 gallons of water and seen no bad results from these proportions.

Wm. Brodbeck, Sr., had noticed some trees that appeared dead on the body on one side, but by care and proper treatment had been saved.

Mr. Bell, of Boonville, as a large fruit dealer and shipper believed in renewing orchards, especially the apple, with young orchards. He preferred to buy fruit of the young orchard and generally gave the old orchards the "goby" in buying. He took little stock in the fruit grown in the "doctored-up" orchard. The best orchard for the market was the young orchard. He closed by advising the cutting down of the old orchard; believed spraying was necessary and the only true remedy from the moth and cited many cases where he had bought crops that had been sprayed that were free from insects of all kinds. In buying varieties he advised the grower to buy only the best commercial varieties.

Mr. Gaunt, of Maryville, in his travels over this section had found many orchards of premature decay. He thought the principal cause was over-production, and thought the trees should be trimmed back at the time to prevent over-bearing the following year.

Dr. Goslin on spraying said: "I have had to answer so many inquiries as to the solution of arsenic to spray apple trees, that I will give you a recipe for a solution of arsenic that is easy and simple to make. Don't use more than $2\frac{1}{2}$ ounces to the 100 gallons of water, and one-half a can of Lewis' lye is sufficient

to make a perfect solution. Better dissolve the lye in a small tub of water, then add the arsenic and stir it for a few minutes and it will dissolve perfectly. This is reliable and will not burn the foliage. Be very careful; have no trash in the water, as it will clog the valve of the pump. Spray during a calm, for if there is much wind it will be impossible to reach all parts of the tree, and it would be better to do it during clear weather, for should it rain immediately after spraying it would wash all the poison off. Be sure and put the poison label (skull and cross bones) on your barrel, and put your arsenic where there will be no danger to the family. Remember, while you are handling it, that you are handling a deadly poison, and with this before your eyes there should be no danger of mistakes."

L. A. Goodman stated, that spraying was the only means they had in California, where he had been, to save their crops. They sprayed there every few weeks for three months in the year.

Mr. Charles Patterson, of Adair County, read a very interesting report of the condition of orchards in his section of the state. The season thus far had been favorable and the orchards were making favorable progress, although their soil was different to that of this section of the state. He knew of but few old orchards that were being cultivated, and regretted this mistake on the part of his fellow fruit growers. He found many were loth to accept the cultivation theory. He thought in time the specialist in orchard or fruit growing would ultimately supply the markets and have the field. He believed the greatest fault of the orchardist and fruit grower rested in their not reading and thinking enough; it required study and thought. He would plant no more orchards to lean to the southwest. He recommended upright planting with repacking and stamping following the first rain after planting. He would trim high and paint with harness paint after pruning.

REPORT ON ORCHARDS:

BY CHAS. PATTERSON, KIRKSVILLE, MO.

As anticipated in my last report, orchards bloomed very profusely this spring, and the season so far has been favorable to a very heavy crop. The trees seem to be also making a fair growth, as if preparing at the same time to set fruit for next year, but unless we should have an uncommonly favorably season, this cannot be expected, where they are not cultivated. And with all my urging, publicly and privately, for these many years, I scarcely know of any old orchard having been cultivated this spring. Is it not about time to quit urging and accept the inevitable, that common farmers will never grow much fruit for market, and but little, semi-occasionally, for their own use. Those of us who have made it a life-time study have just begun to find out the necessity for cultivating orchards, as they do in California and Florida, and are none too well agreed on it yet. It is very safe to estimate that the sentiment will be twenty years in finding general acceptance, and then a large proportion will shrink from the job, as too formidable for them—they will not understand it and have no inclination to learn.

Hence I estimate that fruit growing will drift into the hands of specialists, who love to make a study of it, and can make it pay by applying labor and skill, while others will drift out in disgust. Very few common farmers study their leading branches of business—how to produce the most and the cheapest food, and how to make the most of it—but simply drift along in the old ruts, wear out their lands and move off in old Virginia style, and then complain that farming does not pay. We need not expect them to take up new branches of study. They will not read and digest your reports and books and papers, if you give them away. The tales of the much abused tree peddlers form the largest part of their knowledge on this subject to-day, and they are just as apt to growl and kick when honestly dealt with, as when swindled.

I refer to this only to indicate that there is as good prospects ahead for professional fruit growers as there ever was, if not a little better.

Time was when trees did fairly well under neglect; but I believe that time is forever past, even in the most favored locations.

Under these impressions I have faithfully replaced my last year's failures in apple trees, amounting to over one-third of 12,000, and have now a very encouraging prospect. Think the most I will have to re-plant next year will be those that will yet succumb to last year's hardship. I will not plant any more leaning to the southwest or any other direction. Which ever way we lean them they will soon overdo the thing, and get in the way for cultivating. We will make a standing job of straightening them and tramp the soil to them the next morning after a heavy rain and wind, when the ground is too wet to cultivate, and we are at a loss for a job. When the ground gets so full of water and loose that the roots lose their hold, they will blow over with the wind which-ever way that happens to be, and such winds are likely to be from the southwest, though not always.

We will not stump back any more leaders or branches, but trim them smooth as high as I can reach with the knife without reversing it and raising the hand above the head. My observation is that where there are so many branches to draw sap from the roots, none will make thrifty growth and get too bushy, and I would rather have a few thrifty branches from last year's buds. The next year I dislike to prune up so severely, as it might stunt the roots and diminish the growth. There is doubtless a certain time that surplus branches act as nurses to the tree, and beyond that time they become thieves, but just when that transposition occurs I can only approximate by guessing.

I like to paint all wounds over half an inch in diameter. As I don't know what kind of paint is most desirable, I have used this spring a black patent paint sometimes called parafine, used by cider makers for painting vats, etc.; it is very impervious to water and acids. We used it also on some out door collar grafting and so far think it answers instead of grafting wax.

Borers have never invaded my trees seriously till last year, when the flat headed as well as the round headed got in considerable work almost before I was aware of it. To prevent doubling their injury with the knife in digging them out, I will wash the bodies, crevices and part of the branches with some alkali. Soft soap is known to be effective, if applied as often as it washes off during the breeding season, but if the alkali in it is the effective agent, the lye water should do as well, and I got "old time lye" from Canada potash, which I will keep trying until I find it objectionable.

I fortunately found an opportunity to see the "Clark Cutaway Harrow" at work, and forthwith ordered one. I think it is the best thing out for cultivating orchards, as it will do good and rapid work in any ground but sod or high weeds, far better than the Acme or Disc harrows.

I forgot to mention in the proper place that cherries are an entire failure with us this year—the first time remembered. The cause, I think, was a heavy sleet about the 25th of March, or the cold accompanying it, when the buds were considerably expanded.

REPORT OF HENRY SPEER OF BUTLER.

To the Officers and Members of the Missouri State Horticultural Society:

As a member of the committee on orchards I submit the following report:

The prospect for a crop of apples at the present time is very good, most orchards and most varieties having set a full crop of fruit. Some trees that tried to carry too big a crop last year failed to bloom this spring and some unhealthy trees with vitality weakened have shed their fruit; but we can not reasonably expect all trees and all varieties to bear in any one year.

The condition of the orchards this spring is generally good. Some of the trees that were damaged by the severe winter are still lingering along and dying by degrees, but they are pretty well weeded out and a large majority of the trees are showing a rich, healthy foliage.

I notice some damage to young trees two years set. Some of them leaved out this spring but withered soon after. I find the body sound and comparitively green but the roots are dead and rotten. Did they die out last fall and perish, or was it the winter? Who can answer?

There have been some large orchards planted here this spring but I hardly think there has been the usual amount of small lots set.

The peach is again a total failure, but the trees are in fair condition and some eight hundred trees in bearing condition. I failed to find a single bloom, so complete was the destruction of the fruit buds.

The pear crop will be light, as it in many cases failed to set its fruit. The same is true of the cherry.

The plum will make a full crop where not destroyed by curculio, which within my observation, has not been as bad as usual.

Upon the whole the outlook to the orchardist in our county is favorable and should inspire our people to better care of what they already have and more extensive planting in the future.

Respectfully submitted,

HENRY SPEER.

Mr. Durkes, of Weston, then read the following paper on the family and commercial orchard:

THE FAMILY AND COMMERCIAL ORCHARD.

BY J. A. DURKES, WESTON, MO.

"A love for home, the garden and the cultivation of a taste for rural life, 'tis gratifying to note is largely on the increase throughout all parts of the land. It has been said that we are an unsettled nation, that a man builds a house, gathers many of the luxuries of life around him, and before enjoying them half a dozen years, will draw up stakes and travel a thousand or fifteen hundred miles to shake off his happiness. True as this may be we believe the traits for local attachments to be as strong in the American people as those of any other nationality.

There is a lasting love for the old homestead; with its every shrub and tree around it. And what delightful recollections cluster around the memory of 'my father's orchard' and the fruits that were in it.

The family orchard truly is a part of home, its value and importance we cannot estimate too highly. The comforts derived from it are so many and so varied to all our wants, combining in their excellency food and pleasure to both mind and body, we almost fail to appreciate them. Our design, therefore, in the family fruit garden will be to gather all the fruits we consider choice and suited to the tastes of the inmates of the homestead and its welcome visitors. Here we lay aside

the thought of car loads and barrels full, but desire to produce the best, the sweetest and most luscious. Our selections will be necessarily of many kinds. The good housewife will wish to have her choice of apples for this or that sort of tart—dumpling or pie for frying, for fritters or stewing; pears for baking or preserving, and so on with all the fruits. Again the selection should be of various kinds, since all personal tastes differ, and the inclination we may have for eating one variety to-day, a change to another may please us to-morrow.

The question, what ought we to plant? cannot well be answered; as already remarked, every person will naturally wish to plant all their old favorites, while there are so many new ones to demand a place in the collection, the planter will not be at a loss for a choice, and but few that will not give some satisfaction in the home orchard. But the succession in ripening is an important point to be kept in mind. The cherries will give us fruit in June; with July will come the apricot, the apple, pear and peach, and so till late, these in their various turns will keep us well supplied.

To those living near large towns and cities there need never be a surplus. For fruits so choice and grown with so much care will always be eagerly sought after and good prices paid for them by private customers.

Dwarf trees can be used to great advantage in the garden, especially by those whose grounds are limited, for if the inclination would be for a large number of kinds, two or three hundred could be planted at eight or ten feet apart with all results desirable. The use of dwarf trees, though practical in every way, are to be recommended more for the amateur than for the general planter. In the choice of ground, when that can be done, the hillside, the best drained spots, though the soil be medium in fertility, would be preferred, as all the elements for proper fruiting and growth of the different varieties can be supplied; while naturally there would not be such stimulation to overgrowth we wish to avoid for the production of fruit. Thus have we endeavored to present to you something in regard to the family orchard, feeling that a beginning was only made in saying what should be said, leaving the subject to you and your discussions and turn to the other part of our paper, though of less domestic and poetic nature, is still a source from which millions receive their enjoyment of fruits, eating them with as much relish as if they themselves could pluck them from the tree.

Forty years ago the product of the Delaware peach orchards was spoken of and regarded as something wonderful, their yield being so large, some bringing their owners over ten thousand a year. The apple

orchards of the Hudson were famous; the opening of the Erie canal and the lake border was fast bringing central and western New York into notice westward, the valley of the Ohio was rapidly becoming the center of a large fruit trade, and so commercially, where transportation was obtainable the attention given to fruit growing rapidly increased.

In our boyhood apples were brought from Clay county in wagons to our town and Fort Leavenworth, even thirty miles further on to St. Joseph. A few years later wagons came from Kansas to Platte and Buchanan counties, from Nebraska and Iowa to Holt and adjoining counties for their supply; many wagon loads season after season have supplied Denver before the time of railroads. Thus it is seen by this retrospective glance that little by little the great foundation was laid, calling into existence such an immense trade and the industry designing to meet it at the present time. It can not be said here, where the orchard should be planted. But as the matter of transportation to the railroad station becomes a point to consider—it should be of easy access, the roads leading from it during the busy season kept level and in the best repair; of course we mean those upon his own premises, if his influence could extend to the public, he ought to know where his interest lies. In the choice of varieties, his aim will be to plant mostly of those in demand at the market which he expects to supply, but on this point he should not be restricted; the communications we now have open up various markets to him. The character must be well considered, those of good shipping qualities, slow to decay, those that do not show bruises too readily. Those in size averaging from fair medium to large, smooth, well formed, bright in color—red predominating.

There seems to be a tendency to plant too largely of only few varieties, especially of the later or winter. Since the older orchards are passing away, a scarcity of late summer and fall apples has been made, seriously felt by the shippers. This, causing good prices, induces the throwing on the market much fruit prematurely, the trade would rather not deal with and the fruit be better on the trees a few weeks longer.

The person, unless confining himself to a few kinds for certain seasons, in planting will always find the later summer and fall varieties paying, especially where good fruit is produced. 'Tis very true a few varieties will out produce others, but we believe that seasons will come when some of the shy bearers will be the very ones to bring in the profits. Such has been the experience in some localities, it would be reasonable to suppose that it was so in others. A few years ago we had fine Ben Davis and others. Winesap, W. W. Pearmain and many more of that

class were poor and scabby. The season following it was just the reverse, and the fine Winesaps, Pearmins and others helped to sell the Ben Davis. Shippers, too, desire to have variety in stock. Several instances can be given where the dealer came to me with a request for a number of barrels of any kind; just so they were different from those he had, having orders for several car loads, and those he did have were nearly all of the one kind his customer had on former shipments requested him not to send so many of, as his trade did not in their turn desire them.

Speaking of difference of taste and a clinging to such sorts as we were acquainted with long ago, was forcibly impressed on us a few years ago. A dealer was shipping from our county to the northwest, he could obtain all the fruit he wanted with us, but he ordered ten car loads from Michigan, remarking, "I had to have them, though they will cost me over 50 cents a barrel more than those I get here; my customers do not esteem your Missouri fruits, they want some of the northern varieties, such as Russets, Baldwins, Northern Spys, etc."

Good sheds or permanent buildings should be erected at convenient points in the orchard. Sheds should be constructed in such a manner as to be taken apart and moved to another point without loss of much time in re-erection.

The gathering and packing season is one in which every hour is worth a day and every convenience that can be had to save that hour will soon be paid for.

Sheds are requisite to put our material in to keep dry; workmen make poor headway in working upon it while wet; after the fruit is in the package we must keep dry; when rain threatens our sheds are handy—the situation is mastered. A few inducements of this kind will have an attraction for your dealer; he feels safe that his men can put all their time to use and his orders will not suffer from delay by the state of the weather. Another convenience to be looked after are low wheeled wagons or trucks, suitable to be drawn about the orchard either by men or horses, upon which boxes or barrels empty from the sheds or returned quickly as the case may require. Under such sheds, or say properly houses, if the owner wishes, cellars can be made, something of a permanent class or to keep out a few degrees of frost only; days often occur in late fall when it would be unsafe to ship, while in a few days after, for weeks the weather is mild.

The care of the orchard must be diligently attended to; good culture must be given—should the growth become too rampant in consequence, check it by giving the soil a rest, but do not neglect it. After a few large crops, the trees need more food to store up for future yields; thin-

ning the fruit should be attended to, though few, if any in this state, make a practice of doing so. Prune out the small interior limbs and all weak, scarred and dead branches. Since your trademark has become "sound, perfect fruit," the moths must be attended to, and your friends, the birds, will help you. The spraying with poisoned water will be another aid. The mode of its application and that of other remedies will be fully discussed from time to time by the society.

REPORT ON ORCHARDS BY J. B. DURAND, PRAIRIE CITY.

In reporting upon our orchards I would say they are generally in good condition with a luxuriant foliage, making a good growth of wood, and what is still better, most varieties are well loaded with fruit which looks well and promising. The Jonathan which were very full last season, will have a half crop. Ben Davis promises to be better for me than ever before, Janet promises a good crop, and the Winesap very full.

The canker worm commenced his work early, but a few days of cold, raining weather settled him. I have been spraying my orchard for the codling moth, with a solution of London purple, and have hopes of curtailing his depredations.

We have a disease in some orchards, which for the want of a better name, we call "Trunk Blight." It seems to decay at the bottom and about half way up the trunk before the top succumbs. Generally the Ben Davis suffers most, but with me the Grimes Golden is most affected; about 20 per cent. dying.

I am cultivating my orchard this season. I am convinced, from observation, most especially while in California, that thorough cultivation is essential if we expect the best results. I am using the Disc pulverizer, which I consider the best implement for that purpose—thoroughly pulverizing the surface without going deep enough to injure the roots. I notice that my Ben Davis apples are considerably affected with the scab, which I fear will greatly injure the fruit. I do not hear any complaint from others. I have planted forty acres more in trees this spring—all in Jonathan and Missouri Pippin—the Jonathan two rods apart, with the Missouri Pippin planted between one way, which I expect to cut out in ten or twelve years. I calculate that they

will have more than paid for themselves by that time in fruit, besides the protection they will be to the other trees in breaking the wind.

Our peach orchards are nearly all gone. What few young orchards there are, look well as to the trees, but the fruit is *non est*—will have to go further south for peaches. Plums are a very light crop; pears very good where there are any trees; cherries nearly a half crop.

REPORT OF WM. MCCRAY, OF COWGILL, CALDWELL COUNTY, MO.

Please find inclosed herewith my report from this locality, which is made according to the best of my knowledge. Our oldest orchards here are gradually dying out and there are not many new orchards being planted, or not enough to meet the demand of our increasing population which will probably be here in the next twenty-five years. Neglect of our orchards and the constant depredations of hundreds of insect enemies, from the apple tree borer down to millions of microscopic fungi that we little suspect, are harming our orchards; and in addition to these pests the great Northwestern blizzards come with their dreadful cold, wintry blasts and freeze many of our apple trees to death. They likely rupture or injure the sap vessels of the trees so much that the proper circulation of the sap of the trees is hindered or destroyed so much that the proper chemical elements, such as lime, potash, etc., which are so necessary for the life of the trees can not be carried into the trees on account of the ruptured condition of the sap vessels of the trees, while perhaps millions of *fungus animalculae* inhabit the ruptured sap vessels of the trees and complet their work of destruction; or the vitality of the trees may be destroyed by over-bearing or a lack of several or even one of the chemical substances which is certainly necessary for the life of the tree.

REPORT OF J. M. KELLEY, SPRINGFIELD, MO.

D. S. Holman, Esq.

DEAR SIR :—In reply to your request, I beg leave to make the following report of my experience in peach growing in Green County. Most of the figures are exact, and in those which I have estimated, I have been careful not to make a better showing than is warranted by the facts :

Ten acres of land in suburbs of Springfield, bought June, 1883....	\$1,000
Fencing with cedar posts and six foot pickets.....	250
Grubbing and plowing.....	100
Fruit trees one year old, set spring of 1884.....	215

Total..... \$1,565

Crop corn and vegetables raised on ground, 1884, exclusive of seeds and labor.....	\$400
Crop vegetables, 1885.....	250
Crop vegetables, 1886.....	100
Crop peaches, 250 trees, all early, 1887.....	500

Total..... 1,250

Balance including cost of the land..... \$ 315

At this date all my peach trees, 1,000 in number, promise a fine yield, all being full, and barring any accident will produce from one bushel to two and one-half bushels to the tree, ripening from June 20th to October.

In addition to the above-named 1,000 peach trees, I have on the same ground about 400 apple trees, 120 plums, 80 cherries and 40 quinces. The plums of the Wild Goose variety are in full bearing. The apple trees have made a fine growth and are thirty feet apart with peach trees between them in the rows and a row of peach trees between each two apple rows. Thus you will see that when the peach trees decay, which they are likely to do in say ten years, I will thus have an apple, plum and cherry orchard instead. I have not taken into account the value of the growth of my apple trees, which is in some places estimated at \$1 a tree per year, nor the prospective peach crop of 1888, my object being to ascertain if peach growing in Southwest Missouri pays.

Yours respectfully,

J. M. KELLY.

Present crop of peaches is expected to bring \$2,000, last year \$500—\$2,500 for peaches alone—thus by inter-planting with peach, that fruit alone in first and second crop will have paid for the land at \$100 per acre. For all other fruit trees and for all labor and material in fencing, planting and cultivating. Were the peach trees cut out now the ten acres would remain a valuable young, thirsty, growing orchard of apple, plum, cherry and quince, nothing worse in health or size from contiguity with the peach. One mistake our friend has made—he planted his orchard within the corporate limits of Springfield, which has grown up to and around his orchard so as to induce him to plat it into fifty foot lots which go on the market when the peaches, plums and cherries are off, and will sell, as some of it is already sold at \$10 per front foot. In all the peach orchard are thirty-two lots—\$1,600—the actual profits on 1,000 peach trees in five years, for the peaches paid for it all.

D. S. H.

ST. JOSEPH, Mo., June, 1888.

L. A. Goodman, Esq., Secretary Missouri State Horticultural Society.

DEAR SIR:—The programme of the semi-annual meeting at Oregon, Holt county, came to hand and I find myself listed to talk cider and how to make it.

CIDER.

It is sweet cider the people want, not the fermented or poisonous stuff that has passed through the cider worm of the still, for from the time it comes forth until it empties into hell and death, it is the cause of crime and dishonor, and is demoralizing to everything it touches; it would then be classed with the alcoholic drinks that are the source of all the moral wrecks, that are on this side the stream of death; of suicide and insanity, of poverty and destruction, of weeping children and despairing mothers and wives asking for bread. Such drink destroys reason, chokes genius, fill our jails and asylums, furnishes victims for the scaffold, cuts down youth and manhood; it breaks the fathers' heart, bereaves the mother, erases love, blights hope, brings premature age in sorrow to the grave; it makes wives widows, children orphans; fathers, friends and all, paupers. Don't touch it, shun it as a viper.

Pure sweet cider is the opposite of all this, and is the healthiest beverage now offered to the American people. It will become the standard beverage of our land, and babes in the cradle will cry for it. The young man who uses it will become strong in mind and muscle, and the fair maiden's cheek will bloom with beauty, and in every valley and on every hill will be a grand old cider mill, while people will come from far and near to drink sweet cider instead of beer.

HARRY KEENE.

CIDER.

HOW TO MAKE IT.

The day is gone by when the cider or jelly business can be run with a profit, if a man persists in following the old ruts of past generations, and unless a man is willing to accept new ideas and form new plans for himself, he is sure to fail of success. Ten years ago a steam cider mill in this part of the country was not to be found. My mill was the second outfit west of the Mississippi river. Now they are everywhere and can be counted by the hundreds, and although there has been such wonderful improvements, there is still a wide field undeveloped. I believe the cider business is only in its infancy. It certainly is for pure apple juice, for I say to you that the supply of pure apple juice does not fill one hundredth part of the demand, and farmers need not fear to set out orchards and make the crop into cider, which, if done as intelligently and carefully as other matters are attended to, his orchards will be a larger source of revenue than the corn field, for there are sold every year thousands, aye millions of barrels of compounds called peach, pear, orange and crab cider, all made with sugar, acids and flavor. Why is this? The answer is as plain as day, there is not enough apple juice to fill the demand, hence these substitutes are recommended by the unscrupulous dealer and manufacturer. Plant orchards; drive this miserable truck from the market. With such rail-

road facilities as this state has got, a glut of fruit is impossible to occur.

The way to make good cider is as simple as it is supposed to be that of making good bread by the good housewife. Take good, sound, ripe apples, wash them, grind and press and store into clean, sound barrels. If barrels are new, they should be soaked well to draw the tannic acid out of the wood. Before filling, clear the cider by repeated racking and exclude the air from the cider all the time.

Respectfully Yours,

HARRY KEENE.

Mr. Laughlin—Is it not true that fruit of quality as good as is grown on young trees can be grown by cutting back old, neglected trees, and inducing a fresh, vigorous growth by means of fertilizers and cultivation.

The Secretary spoke of the care necessary for success in commercial orcharding, advising the planting of commercial orchards, forcing them into bearing, getting all the profit possible and then, when they commence to die, to cut them out. The cost of planting and growing new orchards is but little, and if orchards are planted so as to come on and take the place of the old ones, the most profit can be obtained,

Mr. Wm. Ent stated that some varieties, as the Large Romanite, could be cut back, and would renew itself and do well for a number of years. Others, like the Janet, could not be cut back to advantage; therefore considerable knowledge of varieties was necessary in order to be able to renovate orchards judiciously. He then read a paper on "The Cultivation of Orchards," by Wm. Ent, Savannah.

Mr. N. F. Murray used to like the Grimes Golden, but now finds that they are dying. He believes that the extremes of heat and cold account for the damage. The long, fine autumn fall weather causes the trees, which have formed their terminal buds and stopped growing, to make a new growth. Some merely swell the buds, but even this seems to cause them to winter kill. Recommended that the short-lived varieties should be by themselves, and, when they are going to decay, they should be cut out. Regarding reconstructing old trees, he liked judicious pruning, fertilizers and cultivation. Did not like to cut out the water sprouts, as they are the effect of nature to repair damages. When branches are laden down with fruit, the sap vessels become cramped and

suckers are sent out ; rather than cut out the sucker he would remove the old branch ; he did not believe in allowing all the suckers to grow, but would cut out judiciously. He favored cultivation, in order that the trees would not stop growing in July and begin a new growth to be injured by the winter. Cultivation, mulching and irrigation will keep a tree growing until September, and then it will ripen off in good condition to stand the winter. Had used white arsenic $2\frac{1}{2}$ oz. for 100 gallons of water, applied with a force pump, and it had done no harm to the leaves, while it would kill every insect.

Mr. —— Had cut back the top of an old tree, which had the bark removed from the trunk; the water sprouts had grown up and borne good crops.

Mr. Bell, of Boonville, speaking as a fruit dealer, agreed with the Society regarding growing fruit from young orchards and cutting out the old ones ; he liked to give the old orchards the go-by, and found, that when he bought fruit from young orchards, he could dispose of it anywhere. For dollars and cents he would use young orchards, planting such varieties as would suit the climate and soil and find a ready market. He would keep his orchard cultivated ; he had found in southern Illinois, where apples are successfully grown, they grow their orchards on the above principle. The great complaint against Missouri apples is on account of the worms which they contain ; the spraying with arsenic is a certain remedy, and in many localities is practised regularly. The planting of orchards in the old foggy way will not be profitable; plant only two or three varieties and as many as you can take care of, there will be no danger of over-doing it ; would not attempt to doctor up old orchards.

Mr. Grant, of Maryville, accounted for the premature decay of orchards by the overbearing, which had weakened the tree by overtaxing them ; to remedy it, he would prune carefully, early in the summer of the year when trees show a tendency to overbear.

Dr. Goslin—Had used $2\frac{1}{2}$ oz. of white arsenic with one-half pound of Lewis' concentrated lye in crystals for 100 gallons of water. The lye is only used to hasten the solution of arsenic ; this applied in reasonable amounts, will not burn the foliage. If the trees are drenched, the leaves will be burnt in spots. Profs. Forbes and Cook, and orchardists in all parts of the country, report the best results from spraying. If we can produce apples free from worms, we have the markets of the world open to us, as the Ben Davis is a good keeper. A strainer should be placed over the lower end of the pipe on the barrel, as the chips from the hole, apple blossoms, etc., will clog the valves of the pump and get into the nozzle. Five hundred trees can be sprayed in a day ; go over the trees

soon after the fruit forms and, if rain washes it off, go over again, spraying again in June and a last time in July.

Mr. Patterson gave his experience in dissolving arsenic: He made the mixture as directed by Dr. Goslin, but after giving it several days, he had not been able to get a perfect solution, but had made a good suspension.

Mr. Murray followed Dr. Goslin's instructions explicitly, and in five minutes had a perfect solution; he had used three gallons of hot water to dissolve the two and one-half ounces of arsenic, and then thinned it down, so that he had $2\frac{1}{2}$ ounces for 100 gallons of water.

Dr. Goslin cautioned against using too much poison, stating that it was not known whether the newly hatched worm was killed by absorption of the poison through their tender skins, or by eating the poison.

In California there is a brood every month, and yet they have apples free from worms; if they can do this, should not the farmers of Missouri look after the two broods a year?

Secretary Goodman stated that in California the fruit growers make as much a business of spraying their trees as we do of cultivating our trees; they use one pound of Paris green or four ounces of arsenic to 200 gallons.

Mr. L. A. Goodman:

DEAR SIR—As I notice I am on the programme for a piece (as the school boy says), will first say that it will have to be a short one, as the subject assigned me, I think, requires the experience of one much older in the business, and since I received notice of the duty assigned me I have been very busily engaged in saving our crop of strawberries which began to ripen the first of May, and as I have kept a record of sales of berries up to date, I will send it to you. From the 8th of May to the 28th we sold 446 crates of twenty-four quarts each, at an average price of about \$2.50 per crate, and from that day up to June 4th, 215 crates; the berries growing smaller as the season advanced did not bring so much, but we sold at from \$2.25 down as low as \$1.50 per crate, mostly in our home market, cases returned; so our crop up to the present time would average about \$2.20 per crate. We estimate our whole crop to be about 725 crates—about 17,000 quarts—and think a safe estimate to be a little over \$2.00 per crate. Our vines are all among fruit-trees, and some were so densely shaded, that I did not expect a half crop, for the trees

— Wild Goose Plums, eight to ten feet apart, and peach trees, sixteen feet apart, with an apple tree in every alternate row—of course, we could not reasonably expect a full crop, but our berries have mostly been very fine. We have commenced to gather our raspberries, the Souhegan being the first as usual; we picked one crate June 2d, and yesterday, June 4th, 140 pints, we use pints at first. We get in our home market \$4.80 per crate, and will get that for four or five days. We have one patch of 5 acres, that we estimate about 100 bushels per acre if we get sufficient rains. Our Gregg and Centennial promise a full crop. I expect to realize over \$200 per acre net from ten acres of raspberries. Our plum trees are heavily loaded with fruit. Our bearing orchard of apples is small, but has so far indications of a good crop. I do not hesitate when I say our small fruits (strawberries and raspberries) will net us near \$200 per acre all through.

I write in this way, thinking it the most practical way to get at the profit of fruit culture; I know it will pay. I send you by express to-day a specimen of our raspberries and a few Wild Goose Plums. Please, do not let Mr. Ambrose or any of your particular friends sample the plums, for they are not ripe; if they were, I would probably not send them; please place our berries on your table if they arrive in good condition. I hope you may have an instructive and interesting meeting, and hope that our members may all be able to attend our winter meeting at our Gem City, Nevada, the finest town in the world. I feel confident that our people will extend to all a warm reception.—Please look over this briefly written article, for we have over fifty hands to work and some one is coming in every few moments.

Yours fraternally,

J. H. LOGAN.

Editors Democrat:

Thinking it may be of some interest to the readers of the Democrat and especially any one contemplating berry culture, I will send you a report of strawberry sales from our fruit farm, commencing the 8th day of May, our first delivery in the city, up to the end, including the 28th—twenty-three days:

		PER CASE.	TOTAL.
May 8,	2 cases (24 quarts each)	\$4 80	\$ 9 60
" 9,	2 "	4 80	9 60
" 10,	3 "	4 00	12 00
" 11,	5 "	4 00	20 00
" 12,	7 "	4 00	28 00
" 13,	1½ " (Sunday)	4 00	6 00
" 14,	9½ "	3 60	34 80
" 15,	10½ "	3 60	37 80
" 16,	12 "	3 00	36 00
" 17,	8 "	2 75	22 00
" 18,	26 " net in Kansas City	3 00	78 25
" 19,	24 " " " "	4 00	96 25
" 20,	20 " " " "	2 75	45 00
" 21,	25 "	2 50	62 50
" 22,	26 "	2 50	65 00
" 23,	34 "	2 25	76 50
" 24,	41 "	2 00	82 00
" 25,	46 "	2 00	92 00
" 26,	50 "	2 00 to 1 70	95 50
" 27,	21 " (Sunday)	2 00	42 00
" 28,	71 " 1 85, 1 90 and 2 25	142 00	
			<hr/> \$1,072 80

Total amount of cases, 444. Average price per case, \$2.41½.

Including small lots, sold at retail, our crop for the first twenty-four days would average at least \$2.50 per case, clear of commissions, express charges, etc.

Number of quarts sold, 10,656.

Largest number picked in one day (May 28th), 1,776.

Our raspberries promise a large crop. We estimate our crop at this writing to be about 20,000 quarts; our strawberry crop at 20,000, making 40,000 quarts of berries.

We had sixty-three berry pickers to-day (Monday, 28th). Prices have held up well, and up to the present time we have not received a single report of a single case being received in bad condition. We have sold the most of our crop to shippers here in our city, and I think they have made a nice profit on their purchase. Our strawberries will not exceed six acres, and some of them are among large fruit trees, where we could not expect over one-half crops.

Our experience in fruit culture during the past four years has been very gratifying. I am well convinced that there is nothing that will remunerate the tiller of the soil as well as fruit culture, and especially small fruits, in southwest Missouri. And, as there is but little capital required to commence with, ten acres of land, put in good condition and set in small fruits, will yield a more profitable crop than an ordinary eighty acre farm. And the raising of fruit in this part of Missouri is no longer an experiment, for the last few years have fully demonstrated the fact, that we are in one of the best fruit countries in the United States. But our experience has convinced us, that the timber land is better adapted to fruit culture than the prairie land. Small fruits commence to ripen from eight to ten days earlier in the timber than they do on the prairie; and that is an item of no small consequence.

As my letter is becoming too long already, I will stop for the present time, and, when our crop is gathered, will give your readers, as near as I can, a full report as to yield and prices.

J. A. LOGAN.

WEDNESDAY, JUNE 6, 2 P. M.

Mr. Schultz, of Upper Holt, read the following sensible and practical paper on

CULTURE AND CARE OF APPLE ORCHARDS.

The apple is our standard fruit in Holt county. There is no other industry that pays so well as fruit cultivation at the present time in our county. We can produce as fine apples in Missouri as can be produced anywhere in the United States, and with as little cost. We will always have a good demand for choice apples from the northwestern market.

The great trouble has been in buying stock. The farmers not knowing the best varieties to buy, has caused a great deal of trouble and work for nothing—there having been so many tree peddlers selling trees that were worthless, has discouraged the people from trying to do much. We should not buy trees from parties that are not reliable. I think a tree swindler is worse than a horse thief. Buy trees from our home nurserymen, that will be true to name and are adapted to this county, then with good care you will be happy. Always buy first-class trees to start an orchard with. Crooked, forked, scrubby trees will not make a good orchard.

The best time to buy trees is in the fall, when the nurseryman's stock is not broken—in the spring you have to take trees that have been picked over. Get your trees in the fall, then you can set them out when you are ready in the spring. Don't wait until you are sowing wheat or oats and have to stop everything to look after your trees. Prepare the ground in the fall, by plowing well and deep; drag well with a harrow to smooth the ground. Plant the trees 30x40 feet. You can grow good crops in the orchards while the trees are small. Never plant small grain in the orchard. Potatoes or corn is the best crop to raise—any hoed crop is good that does not vine and run upon the trees. If corn is planted in the orchard, mark off the rows each way so you can

cultivate each way; leave a space six feet wide, north and south of the trees, to give them air. Keep the weeds and grass away from around the trees, work around the trees often with a hoe; cut the corn off the ground when ripe. Burn nothing in the orchard, for trees are easily damaged by fire. Cultivate the orchard until the trees begin to bear freely. Do all the cultivation early in the season, so the trees may have time to mature their young wood before winter.

Bearing orchards may be seeded to clover and pastured by young hogs; especially on the prairies where the trees have no protection and headed low down, the hogs will pick up all the wormy apples, and keep the clover from killing out, and the weeds from taking possession of the orchard. Keep the old hogs out of the orchard; they will damage the trees.

Bearing orchards in the timber should be headed up and well cultivated each year without any growing crop. The first year after the orchard is planted out, the young trees make a large growth. This is the time to prune and shape the trees. If you wait a few years you will have to cut off big limbs to shape the tree. Attend the trees while small. It is but a light job then and does not injure them.

You must keep an eye on your orchard. Never trust to providence or your hired hand, for a careless hand will do more damage in an orchard than he will do good. Keep all tramps out of the orchard that are around after jobs of pruning. Let no man prune in your orchard without you know he is a skillful hand at the business. Wrap your young trees early in the fall to keep the rabbits from barking the trees. The best material to use is screen wire. It will keep the borers and mice away from the trees as well as the rabbits. The wire will cost about twenty-two cents per yard, and one yard will make five guards.

The apple tree grows well when planted in new rich soil. It does not need any fertilizing then. When trees are bearing five barrels of apples to the tree, then is the time to keep up the tree in good growing condition. The large trees soon absorb all the substance they can reach, when they begin to fail. They are like a mule lariated to a stake—the mule is all right while the grass is good within its reach, but when the grass is gone Mr. mule must have feed or he goes down, and that is the way with an apple tree. Apple trees should be pruned the most when there is an off year, and should have plenty of barnyard manure. This is one of the causes of so many trees dying. They are starving for sustenance. Give plenty of manure and you will preserve your trees and have plenty of apples. Don't pile the manure up around

the trees; scatter it broadcast over the ground so the feeders of the tree will get the benefit.

I had, in 1886, two Newton Pippin trees that had not fruited for some time. They were twenty-five years old. I gave one tree a wagon load of barn-yard manure—all that one span of mules would draw from the barn; that tree in 1887, at picking time, yielded twenty-three bushels of fine apples—the other not more than one peck of wormy apples, were gathered. In the spring of 1887 I gave the other tree a load of manure. Now it is full of apples.

Mr. Laughlin, Mr. Murray, Mr. Holman, Mr. Patterson and Mr. Durand, all agreed with Mr. Schultz.

Mr. Ambrose stated that while here he had noticed many trees trimmed high. It was new to him. In Vernon county they trimmed low, as it greatly protected the body of the tree. He wanted information. He got it instanter.

Mr. Murray thought high trimming a mistake, and cited practical results. Those trees trimmed low were universally in better condition in every respect. Several others agreed with Murray and friend Ambrose smiled and was satisfied with his mode of topping.

Mr. Murray, of Holt county, stated that he had headed some of his trees at the height of five feet and others at three feet. Nearly all of the high headed trees were dead, while most of the lower headed ones were in good condition. In regard to cultivating and manuring trees he did not believe that it shortened the life of trees, on the contrary, he thought that it would have the same effect on the trees as civilization on the human race.

Mr. Holman stated that the oldest trees he knew of in Missouri were in a garden which was cultivated and highly manured.

Mr. Patterson, of Kirksville, gave his experience as compared with that of a neighbor. He cultivated while his neighbor did not. His neighbor's trees gave two small crops before his trees bore, but the next year the trees on the cultivated soil gave more fruit than the others had in the three years; they measured twenty inches in circumference while the others in uncultivated soil were only fifteen inches.

Mr. Durand gave his experience in sacking grapes. The bags were put on during the first week in June, and found that the bunches enclosed in sacks were free from rot, while others were half destroyed. The grapes ripened nearly as soon when bagged as when not covered, and the bunches were perfect.

Mr. Murtfeldt corroborated the statements of *Mr. Durand*, stating that it was a perfect success, if the sacks were applied as soon as the berries formed.

Mr. Evans put on two thousand sacks last year and was so pleased with the result that he expected to use ten thousand this year. They not only protected against rot, insects and birds, but allowed them to hang on the vine several weeks after unsacked grapes were gone.

Dr. Goslin read the following letter from *Mr. John Burr*, of Leavenworth, Kansas:

LEAVENWORTH, KAN., May 28, 1888.

MR. A. GOSLIN,

DEAR SIR:—The postal card inviting me to attend the meeting of the State Horticultural Society of Missouri, at Oregon, was duly received—it would give me more than ordinary pleasure to meet with and have a social chat with the members of the society, but I regret to say that old age with its many infirmities precludes the possibility of my being present to enjoy its pleasures with you.

Very respectfully yours,

JOHN BURR.

Possibly an item or two relative to myself may interest some member more than the declination of the acceptance, as in my long life I have had considerable experience in horticultural pursuits. My first was over 60 years ago, assisting my father (in Connecticut) in raising pears, peaches, grapes and strawberries, at that time—1824, my first attempt to graft a grape vine, using a scion of the Isabella on a fox grape, which made a growth of 20 feet the first season. Over 40 years ago I exhibited at a meeting of the horticultural society of Columbus, Ohio, of which I was then a member, 60 varieties of seedling strawberries of my own planting, and creating quite a sensation, and I believe, creating the first great furore in strawberry planting for new varieties.

My last 30 years here in Kansas, near 20 of which has been entirely given up to raising seedling grapes, except the portion I have had to yield to my ever constant but cruel and relentless companion, Mr Rheumatism, and am now so crippled that it is with difficulty that I get about, even with crutch and cane. I am now 87 years old and unable to give proper attention to my grapes, have put them into the hands of Stayman & Black, Leavenworth, for propagation and dissemination, some of which will probably be ready in a year or two from the coming fall. From my experience in raising grapes from seed for permanent improve-

ment and success, I should use seed from only the best varieties of hardy, healthy, vigorous kinds. Unfortunately most of our late introduction of new varieties are crossed more or less with the Vinifera, which is not at all adapted to this section of country; they are too tender to withstand our winters unprotected and there are but few locations where they do not blight, mildew and rot. I should not plant seeds of the Labrusca, they are too subject to rot. We are quite too remiss in not thinning our fruit when our trees and vines overbear, not so much to have the fruit so much better as to preserve the trees and vines in health; there are more vines injured, yes, ruined, by being allowed to overbear than from any other cause which I have particularly observed in this section; vines should not be allowed at any time, but more particularly for the two or three first years of their bearing, it prevents the growth and ripening of the wood and enfeebles them so much that they are likely to be winter killed or are so injured that it takes a long time to recover, and few ever recover, to make a strong healthy vine, and this will apply in a great measure to your apple trees, which, please observe carefully. My vines in early spring never looked better or showed finer prospects for fruit, but a very severe hail storm on the 10th cut and broke them so much that I shall have very little fruit, not one-fourth of a crop.

Perhaps it may interest some of the members to learn how some of the grapes stood our severe winter, or how they did not.

The Niagara, Empire State, Ulster Prolific, Moore's Diamond, Prentiss, Virginia, Jefferson, Lady Washington, and in fact, about all the hybrids that were not protected were killed to the ground. I find some of my best varieties to be quite as hardy as Concord and not injured at all.

Respectfully yours,

JOHN BURR.

The secretary read a paper from Mr. Schott, of St. Joseph, a specialist on grape rot, who took the position that rot was not a fungus disease, but was caused from the sting of an insect, and sent specimens of leaves; he thought vigorous pruning and sulphur smoking the proper and surest remedy.

Prof. Taft, of Columbia, obtained the floor and took positive grounds against the insect theory and was sure that rot was a disease. Miss

Murtfeldt, entomologist, agreed with the gentleman from the Athens of our state. We agree with the lady from the suburbs of St. Louis.

Following is the paper:

ST. JOSEPH, Mo., June 5, 1888.

Gentlemen and Secretary Missouri State Horticultural Society:

Your circular has been received and contents noted, but unavoidable business prevents me from joining you at your meeting, but I send you herewith branches of vines affected by the animals of which I sent you a sample a few years ago, the effect of which you can see on the stems of vines already partly ruined, even the little bunches; and later berries are formed and attacked by them they soon faint and fall off, the point of which you can see at each berry in which they will lay their eggs, from which a new generation proceeds.

Prevention, as I would advise, is heavy pruning and good cultivation of the grounds, and after each hoeing or cultivation a good sprinkle or spreading of air slaked lime, and smoke of some rubbish with sulphur, which destroys the animaculæ, best in the evening as a precaution to keep them off; when smoked they will fall, and in a short time they will get up and try to re-climb at the stakes, posts, or body of vines; all such ought to be painted with coal tar, pitch tar, or anything that is sticky and will hold them fast until destroyed.

You will see by these branches that they are already attacked, even part of the berries already partly eaten off.

Let me hear from you at your earliest convenience.

Respectfully submitted,

WILLIAM SCHOTT.

REPORT ON SMALL FRUITS.

BY J. N. MENIFEE, OREGON.

Having just gone through one of the most unfavorable seasons on record, the present outlook for a small fruit crop is not at all flattering,

being too dry to learn much by way of experimenting with new fruits. I am unable to report much that will either interest, instruct or encourage. Therefore with your indulgence I will present a few thoughts preliminary to my report.

When we duly consider the subject of small fruit culture we find it of vast importance to the masses. We can hardly find an individual who does not consider small fruits one of our greatest luxuries, and if we should find such a one, who did not, we would all be ready to pronounce him wofully depraved. No production of the soil is more conducive to good health, yet it is a fact that about one-half of our people are destitute and the other half but poorly supplied with these delicious fruits; hundreds of people in Missouri never saw a well cultivated berry patch, or had as many strawberries as they could eat. What is the matter? It is not the climate, although it gets very cold, and very hot, very wet and very dry, yet we have varieties of all kinds of small fruits that succeed with all these climatic extremes.

It is not the soil that is at fault, for our fruit exhibits abroad have won for the state an enviable reputation. Our soil is peculiarly adapted to the production of fruits, but our people in their rage for corn and hogs have overlooked this, and many other industries which would bring better returns. There is great ignorance in regard to the intrinsic value of small fruit for family use, of its culture and its market value.

• If this was well and generally understood it would require ten times as much small fruits as is now grown to supply the home demand. Why not grow even twice that amount?

We could thereby feed a hungry multitude and give employment to thousands of the dependent poor in the berry fields, dry houses and canneries; no danger of overproduction if wisely managed. The sacrifices made, the gratuitous services rendered by the busy members and friends of this society who are here to promote the interests of this and kindred industries are highly appreciated, and we greet you not only as fraternal workers, but as public benefactors. A grand field is before us, and we are heartily glad to see so many live men and women on duty. Success to the State Horticultural society and all her auxiliaries.

STRAWBERRIES.

We estimate the strawberry crop at about one-third an average crop; the old plantations were all killed by the drouth and a heavy frost on May 14 destroyed most of the berries on low lands.

The kinds that were least affected by the drouth were Bubach, Crescent, Mount Vernon, Gandy's Prize, Cumberland and May King.

Those most affected were Jewell, Lida, Bidwell and Manchester. If we could control this sun scald, rust, or fungi, the Jewell, Lida and Manchester would be three of the best kinds in cultivation, but they are about worthless as it is.

By careful observation on my experimental grounds, I would give the following list in about the order named as the best kinds to grow for market: Bubach, Sucker State, Miner, Crescent, Mount Vernon and May King.

The Gandy's Prize, Warfield, Bancroft and Itasca are very promising. Jessie is not very productive, but as I have it highly stimulated for growing plants, it could not be so productive. Bombay, Monmouth, Logan, Warfield and other new kinds are fine growers but are not allowed to fruit.

RASPBERRIES.

Wood very short, one-third of a crop. Oh, Hopkins and Souhegan are most valuable blackcaps on my place, and I have tested sixteen to twenty kinds. Reds are not profitable here, being worth but little more in market than black caps, and they ripen very uneven and are hard to pick. Shaffer's Colossal, a cross between the Red and Black, is bound to supersede all the Reds grown in the West; plants large, hardy, productive; very hard to propagate and transplant.

Carman is likely to supersede the Souhegan; Earhart not profitable if season is dry; Gregg too tender, dies back from pruning, and is short-lived.

BLACKBERRIES.

One-half crop; the canes pruned late in season made no further growth, some died back; wood short, and badly winter-killed. Snyder is the standard, having matured fruit regularly for fifteen years, but Wallace, Freed, Taylor's Prolific, and Western Triumph are hardy, large, productive, valuable; Early Harvest, Missouri Mammoth, Wilson Junior and Early Cluster too tender; Staymen, Stone's Hardy and McCracken hardy and productive, but too small; Erie and other new blackberries, also Lucretia and other dewberries not fairly tested but are very promising. Dwarf Service not much cultivated, hardy, productive, resembles the huckleberry.

Huckleberries have been thoroughly tested and will not succeed here; they do not root deep enough to resist the drouth.

Gooseberry and currents almost a failure, late frost destroyed the bloom.

GRAPES.

One-half crop; wood in bad condition; late frost destroyed the bloom in many places, but since many do not eat, but drink the fruit of the vine, the loss of a crop is of less importance. "Wine is a mocker."

REPORT ON SMALL FRUITS.

BY SAMUEL MILLER, OF BLUFFTON, MO.

STRAWBERRIES.

Of these, I have only Jessie and Buback No. 5, in fruit, which I carried through last summer's drought and heat, with no little trouble. Jessie needs but little comment, as it is about as near perfection as a strawberry (plant and fruit) could be.

From present appearances think it will be my chief berry for some years to come.

Bubach is a splendid big berry of better quality than I expected from hearsay. Plant is very vigorous and fairly productive. I have planted seeds of it fertilized by Jessie, so in years to come something may be raised valuable. Have planted a number of the old sort this spring.

RASPBERRIES.

Black's Centennial, Hopkins, Gregg and Mammoth Cluster all are bearing a full crop. Red's, Turner, Crimson Beauty, Scarlet Gem and No. 2 of Staymans' came out sound and are full of fruit. Marlboro killed to the ground, Cuthbert badly hurt by the winter, yet some canes left for fruiting.

Shaffer has a few canes winter-killed, but enough remaining to produce an immense crop, which it now promises. This latter I deem a most valuable treasure, and C. A. Green deserves the thanks of the country for bringing it out.

BLACKBERRIES.

The Triumph had some canes killed, but enough left for a fair crop. Snyder, Taylor, Stone's Hardy, and Freed all came through sound, and are now white with blossoms.

CURRANTS.

Only half a crop, and many bushes were killed by the drought last summer.

GOOSEBERRIES.

Houghton, Downing and Orange are the only ones I have, all doing their best. Dwarf Service berry tree loaded with fruit as usual.

CHERRIES.

The finest crop we have had for ten years.

MULBERRIES.

Downings' Everbearing, Black Russian and St. Charles White are bearing a full crop.

GRAPES.

At this time the prospect could not be more promising, and if there is nothing serious occurs, we may show sixty varieties at the big show in St. Louis next fall in case the society exhibits. This day arrived 2,000 paper sacks for me, so you see the rot is to be guarded against in more ways than one. One variety is ready for sacking now.

PLUMS.

I suppose these come in the class of small fruits. The Wild Goose, Marianna, Deep Creek, DeSoto, Golden Beauty, Bassett, Cling Stone and Freestone Damsons. All these are holding a good crop and by smoking, the trees have enough sound fruit on them. But just now I am confined with a lame side and fear that the Turk may steal a march on me.

SAM MILLER.

REPORT OF W. M. HOPKINS, SPRINGFIELD, MO.

Ladies and Gentlemen of the Missouri State Horticultural Society:

The executive committee have assigned to me a very laborious and knotty subject: "*Best Strawberries for South Missouri and Why.*" You will perceive this covers a large area of territory—from the Missouri river to the Arkansas line, embracing three degrees of latitude and a great diversity of climate and soil. The strawberry is very capricious and a few miles often makes a great difference in its behavior and productiveness. I have always tried to be loyal to the powers that be, but in this case shall rebel, and confine myself to the locality in which I now reside—Greene County, Missouri, being near the center of the territory embraced in the above query. I have fruited this season six or eight of the newer varieties, which some fruit men with less brains than experience or knowledge are pleased to term "fine haired," by way of derision. I am aware the "Crescent Seedling" has been proclaimed the "best" berry for all purposes all over the country; that most people take it for granted and still continue to plant it. Why, says some friends of the "Crescent," is he going to attack that berry, and if so, what will he recommend to take its place? I answer the "Jessie." And I have three other varieties that are its superior—The Jewel, Monmouth and Bubach Seedling No. 5. I place the Jessie ahead of any berry I have ever fruited in my seventeen years' experience. Some friend of the "Crescent" says, give us the reasons why. Best is the superlative of good, and if the Crescent has more than two good points, I have never been able to see them: Its earliness and iron clad plant. Why, some one asks, is it not productive? Yes, too much so. That is one of its greatest faults. It sets more berries than it can bring up to any size. You get three or four pickings of fair-sized berries, too mean in quality for the table, entirely unfit to ship, unless picked when half ripe, then its berries ripen up in about ten days, and as the masses have been taught to believe it the berry for the money, everyone has them, and this causes a glut and breakdown in the market, and has a bad influence on good berries. Berry growers know how hard it is to spring a broken down market. It has been correctly named the lazy man's berry. Like many berries that have had their day, its end is approaching, and then let berry growers shout and sing its funeral dirge. So mote it be.

It is by comparison of things that we are enabled to judge and appreciate their merits, and as I have answered what is the best berry for South Missouri, I will now tell you why I think so, by giving the good qualities of the "Jessie:"

1st. It is a good, hardy, strong-growing plant, free from rust, very productive, of nearly best quality, very large, with few small berries; will pick full three weeks. I picked ripe berries from it on the 7th of May, after many of the first blooms had been killed by a heavy frost. It is about as early as the Crescent. Why, says some one, it is as near the ideal or perfect berry as can well be. The only fault visible is it blooms so early and may be tender and liable to get injured by late spring frosts. This can be easily remedied by keeping your mulch on the plants until all danger is over. It is also a stamineate, which I consider another great advantage.

As to quality, there is as much difference as between a Pine Apple and a Buckeye, and my word for it, the "Jessie" is not the Buckeye. I expect to receive the criticism of many fruit growers. Let it come, I am willing to let experts say, if every word I have said about the Crescent is not true.

W. M. HOPKINS.

LONE TREE, Mo., May 31st, 1888.

L. A. Goodman, Esq., Westport, Mo.:

DEAR SIR:—I send you by mail to-day a package containing something, I know not what.—I received it yesterday from Mr. J. H. Welch, Rockville, Bates County, Mo—which is very troublesome in their strawberries. It comes on apparently as if a stem had been broken and the sap oozes out and then forms a ball and then dries up and blows away as the inside of a puff-ball. Please bring it before your meeting and see if others are troubled with the same. He says he finds it only in the Crescent. I was there and examined his berry patch and found that it was apparently injuring his berry patch. I wish you or some person would explain what it is and to what extent it will injure the plant, if any.

Hoping to hear from you in the near future.

Yours truly,

FRANK J. SCHATZ,

(No definite answer could be given to this description and the matter is to be examined by Miss Murtfeldt, Secretary.)

Mr. Holman stated that Mr. Hopkins spoke only for Greene County, and that others might do better in other parts of the state. The Cumberland was a great favorite in all parts of the state, and in Greene County it does well.

Mr. Ambrose for Vernon County would use Crescent, Cumberland, and Miner and all of those that gave good results this year.

Secretary Goodman alluded to two seedlings, Perfection and Beauty, originated by Mr. Speece, of Carthage, which seemed of very even size and quite productive. They were regarded by him as superior to Jessie or Bubach.

Mr. Murray would not quite give the Crescent for all the other kinds and if they are mulched they hold up. He considered Hopkins as the blackcap. It was harder, larger, more productive, and almost as early as the Souhegan. Gregg was not hardy enough. Snyder is the best blackberry. He found that by leaving the mulch on for ten days it held back the blooming and ripening.

President Evans gave the experience of a neighbor who planted an acre and gave good cultivation and care, using Crescent, Capt. Jack and Windsor Chief. The plants blossomed, and the fruit set well, but no berries ripened.

Mr. Blanchard gave his experience with Kittatinny and Lawton. At first they were very productive, but for several years they had rusted badly.

Col. Evans had discarded the Kittatinny on this account.

Mr. Durand supposed he had the Kittatinny, but they had never shown any sign of rust, although his neighbor suffered badly.

Mr. J. B. Laughlin, of Iowa, grows his strawberries on low ground. Three years ago they had severe frosts on the 9th of May. At that time the strawberries were in bloom, but on that low ground they were not injured, although ice formed a half an inch thick on high ground. He had not thought of it before, but it now occurred to him that it might be because the mulch was removed.

With him the Marlboro was hardy to the tip, and was a strong grower. The Turner with him was worthless and the Cuthbert was not equal to Marlboro.

Souhegan to him was superior to the Hopkins. Shaffer was also very productive.

Niagara was a strong grower and its only fault was that it set too much fruit. It was much liked by people who had a taste for grapes of a good quality.

Gœthe was one of his best varieties; with covering it, the vines were carried through winter and as they came on after the Concord they brought a good price. They were very productive and of excellent quality.

REPORT ON STONE FRUITS.

BY G. W. HOPKINS, OF SPRINGFIELD.

Mr. President, and Gentlemen of the Missouri State Horticultural Society:

As one of the committee on "Stone Fruits," I desire to make a brief report for Southern Missouri:

In my report to your meeting last winter I stated that the peach trees had gone into winter quarters in the best possible condition. Such was the case,—but notwithstanding this fact, many peach buds were killed in this section, when the coldest weather we had the thermometer only reached ten degrees below zero. At Olden and other points south of here the peach buds were about as badly injured when the thermometer only reached five degrees below zero.

It has generally been conceded that ordinarily the peach will stand fourteen degrees of cold. But here we have the fact presented for our consideration, of the wood being in the best possible condition to withstand severe cold weather, and yet the buds were injured at a much higher temperature than stated above.

Just why this is I am unable to say; but hope some of you gentlemen have given the question a thought and will be able to throw some light on this phenomenal freak of nature. Some time since I sent out cards to the leading horticulturists of Southwest Missouri to ascertain

the condition of stone fruit in their respective localities. Had I received replies from all the parties addressed, I should be able to make a much better report.

Mr. Gano, superintendent of the Olden fruit farm, very promptly responded to my inquiries and gave me the information I desired. Mr. Gano reports the plum trees at his place as being in a fine healthy condition. The trees are loaded with fruit, and scarcely any sign of insect injury. Mr. Gano reports peach trees in splendid condition. The following varieties of peaches that made enormous wood growth last season, are fruiting sparingly this year:—Salway, Foster, Crawford's Late, and some others. All of the Hale family,—Keyport White, Smock, Crawford's Early, Newington Cling, Elberta, and Columbia, will have nearly a full crop. Mr. Gano reports cherries a full crop where trees are old enough to bear.

In the vicinity of Springfield we still have a "fighting chance" for a fair crop of peaches. The most of varieties had enough left after the winter freeze, but recently we have had two hail storms which have done considerable injury. This, however, is purely local and is confined to a small area of territory. Outside of this there will be plenty of peaches.

Plums set a full crop, but are considerably damaged by hail and curculio.

CHERRIES.

Early Richmond and English Morello, full crop, but damaged by hail.

Hoping, gentlemen, that you will have a very pleasant and interesting meeting, and regretting it will not be possible for me to attend. I remain

G. W. HOPKINS.

SHALL WE GIVE UP THE PEACH?

BY G. SEGESSION, OF AMAZONIA, MO.

During the current decade we have had but one nearly full crop of peaches, i. e. in 1882, a partial crop in 1887. For the intermediate years there was almost nothing, when in former times an entire failure was a rare occurrence, and when it happened it was commonly from late spring frosts, while now the damage is done in mid-winter. And not only the fruit buds are killed but at a temperature of 20 or more degrees below zero, twigs, branches and whole trees succumb and what is left presents a sickly aspect. When we inquire into the causes of atmospheric extremes that have befallen the West year after year, of late, the answer is not quite definite. There are periods of certain duration, says one, of a higher average of temperature followed by periods of prevailing cold. This might give hope for a change; but how soon? How long are these periods? According to the opinion of others it is the consequence of the cutting down of fine forests in the North, seconded by thinning out of the woods in our sections. A rational antidote to this would be to stop at once the destruction of the northern forests and to establish artificial shelter belts in planting large strips running east and west with quick growing timber on the public domain and other unoccupied land. But this is Uncle Sam's business. By the way, it would be a good thing for every county or township to own a tract of land, say 20 or 40 acres, to plant it with forest trees, the bulk consisting of walnut, catalpa, white oak, the balance of any kind of native trees that can be found. I think it is not necessary to point out the many benefits that could be derived therefrom. But conception as well as action is slow in this direction and even should it be done it would not be much for this generation to enjoy the results. We have to look elsewhere for advice if we will secure the pleasure of having the luscious peach. It was hinted to lay down the branches in winter close to the earth's surface, the protection against frost is much greater than up in the crown of the tree. Observation

sustains it too. Last winter 23° below zero blew out the life from all the fruit buds in the trees. This spring we found several half broken branches resting their tops on the ground and there we found blooms, the only ones perceptible in the whole orchard of a thousand trees. The same observation was already made in previous seasons. I would suggest to this end to train low branched trees so the branches could be bent down and fastened to the ground without breaking them. To do this on a large scale perhaps not being practicable—the large scale at least is better left behind in the peach business—to some extent we might succeed in this way to save part of the fruit. One neighbor laid down the trees in the fall some years ago, covering them with strawy matter weighted down, and he had peaches the following summer when nobody else had. But it was rough on trees.

Question. What are the best peaches for evaporating? *Mr. Holman* spoke of the free-stones as best.

Mr. Murray stated that the white varieties were hardier than the yellow varieties. Of yellow varieties the Smock was best. It was better than Beer's Smock. It was a dry peach.

Mr. King of Amazonia had had large experience with peaches but would depend on native seedling varieties.

Sevy Goodman said that *Mr. Munson* of Texas was the best authority in the country. He recommended Elberta Smock and Salway.

Mr. Gilbert asked if the Smock ripened at one time or if they continued for some time.

Mr. Murray replied that Smock lasts as long as any other variety and was one of the best for evaporating.

Mr. Durkees. For family use might return to seedlings, or at least would give them a place.

Mr. King, of Amizonia, had tried trees from eastern nurseries and had also gotten up several seedlings.

The last year we had a crop and he had 1,000 peaches which bore their first crop. For several years there was no crop, but last year he entered thirty plates at the St. Joseph Fair and took first premium in every class competed for. If we wish to succeed with peaches we shall have to depend on home grown seedlings.

WEDNESDAY EVENING SESSION, JUNE 6, 8 P. M.

President Evans called the meeting to order at 8:30. The choir sang a festal hymn, after which Prof. Taft gave a report on the soundness of seeds as a result of his experiments. The seeds sold by the large growers of New York, Cleveland, St. Louis, Chicago and Detroit, gives the best results when put to the test. From 90 to 100 out of a hundred grow. Seeds sold by the local dealers are liable to be impure or labeled wrong. Chicago and St. Louis sell as pure seeds as houses farther east, and express may be saved by patronizing them. There are many varieties of early peas, but he thinks the "American Wonder" is as good as any. They are nearly as early and do not need sticking. Of lettuce, he recommends the "Boston Curl." It is the best variety I know of and stands heat well. Spinach is the best cultivated greens. It may be planted in fall or spring. They last two months. Of the beet species, the Professor recommends the "Eclipse." He gave some practical suggestions to gardeners. He would plant seeds in long straight rows, that they may be cultivated with a horse. This saves time and insures better growth. In the absence of a horse use the scuffle hoe. You can cultivate an acre a day. It costs about five dollars, and will last a century. He gave some practical information on hot bed material.

At the close of his remarks, Mr. Kellogg, of Craig, made an appeal in behalf of the Northwest Immigration Society. Holt county has \$200 to raise, and if each township in the county gives \$20, the sum will be raised. There is a mass meeting to be held at Mound City, on Tuesday June 12. A full attendance is desired by order of the committee.

The choir then rendered "Dickory Doc," following which Miss Marie Louise Goodman, of Westport, gave an appropriate and pleasing selection, "Tom Brown's Day in Gotham." Her declamation was well received, as it should have been. "Wild Flowers," was the subject of an able paper written by Miss Murtfeldt, of Kirkwood. The article was a beautiful one, and indicated much scientific learning in the line of botany. She is an ardent admirer of flowers, fresh from the hand of their Creator, before man modified their nature. In the affections of the true flower lover, nothing can surpass the color, fragrance and delicacy of the wild flower. We are moved to joy by them, because in them, we

find the mystic types of our moods and emotions. She pleads for the preservation of God's own beautifiers.

Miss Amanda Evans, of Harlem, then delighted the audience with a touching declamation, "Sister and I." It was highly appreciated. The choir then gave a selection from "Ruth and Boaz." Mrs. O'Fallon read a paper on flowers, which showed her nature and that of flowers to be in close harmony. She read loud. Thanks. The following is her essay:

FLOWERS.

BY MRS. CARRIE O'FALLON, OREGON, MO.

Flowers are considered among nature's most beautiful productions. Their apparel surpasses that of any earthly king, even Solomon in all his glory. They are the objects of almost universal admiration, scattered as they are with such profusion over the whole earth. For wherever man has wandered from shore to mountain top from the fertile valley to the sandy plain, *everywhere*, as if planted by the very hand of God, they spread their mantles of loveliness.

Nor does nature ever weary of saying over her floral *pater-noster*, from the first bud awakened in the spring 'till snow again spreads her mantle over all, the same succession of blossoms is repeated year after year.

"In all places then, and in all seasons,
Flowers expand their light and soul-like wings."

But their profusion has not caused us to be unmindful of their beauty and influence.

Their graceful forms, delicate structures, brilliant colors, and sweet perfume speak to us of purity and goodness.

The praise of their beauty is indeed freely given by all; but very few bestow anything more upon them than their admiration.

In Palestine, amid the gorgeous colored lilies that grow there in such profusion, Christ said to his disciples:—"Consider the lilies of the

field." Among the thousands who admire flowers how *few* consider them? It is only these few, however, who do consider and study them that really love them, and to whom they reveal their utmost loveliness.

Some people live surrounded by plants and flowers all their lives without making *any* accurate observation of them. Yet this study of the nature and habits of plants and the best methods of cultivating them, is one of the most attractive that can be pursued—

"This is an art

Which does mend nature, change it rather; but
The art itself is nature."

By means of study and observation, a great change has taken place in the flower kingdom. Old varieties, by special care and cultivation, have been very much improved, and by the methods of fertilization, hybridizing and cross-breeding, new varieties have been originated, differing in appearance from each other and from the original flower. We can see an astonishing improvement when we compare our florist's flowers of the present time with drawings made only twenty or thirty years ago. It has taken many long years of skillful cultivation to bring them to their present standard of development. But even the oldest of our cultivated plants still produce new varieties.

With the knowledge gained by the experience of the past, and the interest that is being awakened in this branch of study, we may expect to see surprising results accomplished in the next few years. There is still a vast field largely unexplored, in which to study and experiment. This science of perfecting old varieties of flowers and originating new, is not confined to scientists alone, but is open to all who love flowers and have a knowledge of their individual peculiarities. The cultivation of plants and flowers is indeed an ancient art. The Greeks and Romans prized their beds of violets, roses and other fragrant flowers *very highly*. A great many botanical gardens were established in different places during the sixteenth century.

The one founded by Henry IV, at Montpelier, in France, contained over 1300 French, Alpine and Pyrean plants.

But the special cultivation of particular plants was first extensively engaged in by the Dutch, at the beginning of the seventeenth century. From the Netherlands, a passion for it has spread to other countries. But it is still from Holland that the market of the world is chiefly supplied with its bulbs. An extraordinary flower mania prevailed there in the seventeenth century, especially in regard to tulips. Bulbs were bought and sold for fabulous prices. Thirteen thousand florins was once paid for a single bulb of a prized variety.

There are stories told of men selling their houses, farms, in fact everything they possessed for a few splendid specimens of rare species of Tulips. Hyacinths are also more extensively cultivated in Holland than elsewhere.

The Carnation Pink, which is such a great favorite among florists' flowers, both on account of its beauty and fragrance, is extensively cultivated in both Germany and Great Britain. A great many varieties of it have been produced.

Few plants possess such a tendency to originate new varieties as the Dahlia.

By cultivation over two thousand varieties have been produced from only two species. It is surprising to note the points of structure and constitution in which the varieties differ so slightly from each other.

The Pansy is another illustration of an exceedingly variable plant. It is one of the finest and perhaps the best loved of flowers, and has been wonderfully improved by cultivation. The varieties that have been produced are innumerable and every new seed catalogue we receive portrays some wonderful new variety that has just originated which far surpasses any previous specimen. The finest Pansies are propagated with great difficulty and require the most careful cultivation to keep them from returning to their former wild state.

The Chrysanthemum craze, which has been raging for the past few years, has been the means of bringing into notice a flower which before was not duly appreciated. Most of our Chrysanthemums have originated from a simple Daisy-like flower first brought from an island just east of China. The cultivation of it began in England about the middle of the last century and in America the first of this century. When first introduced here there were only eight or ten varieties. Patience, care and keen observation from year to year so developed and improved the plant that to-day there are thousands of different shapes and varieties.

Though there are many other of our florists' flowers which deserve a special notice of their wonderful improvement and variation, we have only space to speak of one, and so select the Queen of Flowers—the rose. "The Empress of Flowers may claim, if she please, a more ancient monarchy than the Empress of India.

‘Never sure, since high in Paradise,
By the four rivers, the first roses blew,’

has she failed to maintain her royal supremacy."

Though roses have been cultivated to some extent for a long time the greatest progress in rose culture has been made in the past fifty years.

Darwin records the fact that three hundred distinct varieties have been produced from a single wild rose during that period.

Roses of the present as compared with those of the past are superior by reason of the introduction of groups that are hardy, or nearly so, and that blossom at intervals, or continuously, through the summer and autumn. Rose culture has been the most successful in France and England. America, it is said, has originated more fruits of high quality than any other country, but her contribution to the list of new roses is not extensive; while Italy and Germany have done almost nothing.

Its cultivation has been greatly promoted in England by the institution of Rose shows, and by the organization of the National Rose Society.

Canon Hale was very influential in establishing these institutions and in bringing into more prominent notice the Rose.

Some thirty years ago he said: "There deepened in my heart an indignant conviction that the flower of flowers did not receive its full share of public honor."

It is he also to whom we are indebted for the following beautiful sentiment: "He who would have beautiful roses in his garden, must have beautiful roses in his heart. He must love them well and always. He must have not only the glowing admiration, the enthusiasm and the passion, but the tenderness, the thoughtfulness, the reverence, the watchfulness of love."

WILD FLOWERS.

BY MARY E. MURTFELDT, KIRKWOOD, MO.

In the affections of the true flower-lover, none of the regal beauties of the parterre or conservatory can supplant the wildlings of the wood and field. We linger in ardent admiration over our choice roses, noting

the symmetry of their development, revelling in their glowing colors, velvety texture and delicious fragrance, we exhaust the superlatives of all complimentary adjectives over those marvels of modern art, our autumn Dahlias and Chrysanthemums, but with all their magnificence we are conscious of something of formality and artificiality, a lack of sentiment and suggestion which is supplied in such generous measure by the unobtrusive treasures of the shadowy woodlands or the streamlet's verge. It is the flower fresh from the hand of the Creator, before man has produced upon it any of his so-considered beautifying malformations, that is most eloquent of infinite skill, wisdom and beneficence. Its delicacy of texture, the ingenuity of its structure, the exquisite adaptation of every organ to its office, appeal at once to the mind of the mechanic, the eye of the artist and the heart of the poet and worshiper.

It is in the wild flowers only that we find those mystic types and correspondences of our varying human moods and emotions. Who will undertake to analyze and catalogue the distinct sensations experienced in the consideration of flowers met with during a single springtime ramble? And yet, who will deny the individuality of expression in the different species? Why do some move us joyously, so that, with Woods-worth :

"The mind with pleasure fills,
And dances with the daffodils."

Why do others seem the embodiment of pathos, like the drooping bells of fair *Linnaca*? What is really the secret of the Violet's modesty, the grace of the Columbine or the royalty of the Cardinal flower? These are subjective impressions of the most elusive quality and offer an interesting field for the psychologist. But after all, we can hardly wish all these questions answered in metaphysical polysyllables. Rather let them remain as impalpable as fragrance or the impact of color on the optic nerve, a spiritual gift from the finer senses.

In the wild flowers of North America, the botanist and the lover of nature have a field of study probably more extensive than that offered by any other division of the globe. Very few are the floral types not here represented, although some of the more bizarre and striking forms may not be found within our boundaries.

As to the intrinsic beauty of our species, that most accurate observer and poetic writer on popular natural history, John Burroughs, in comparing our wild flowers with those of England, says: "In my excursions into field and forest, I saw nothing of the intense brilliancy of our cardinal flower, which almost baffles the eye; nothing with the wild

grace of our meadow or mountain lilies; no wood flower so taking to the eye as our painted trillium and lady's slipper; no bog-flower that compares with our *Calopogon* and *Arctusa*, so common in southeastern New England; no brookside flower that equals our jewel weed; no rock flower before which one wou'd pause with the same admiration as before our columbine; no violet as striking as our bird's foot violet, no trailing flower that approaches our matchless arbutus; no fern as delicate as our maiden hair; no flowering shrub as sweet as our azalias; in fact, the flora of England represents a commoner type of beauty, very comely and pleasing, but not so exquisite and surprising as our own." And these comparisons are made without including any distinctively Western species, such as our evening primrose, golden hypericum and sensitive briar.

In our own State, the flora of the Mississippi Valley not only attains in some respects its highest excellence, but the flora of the entire country is well represented, species in one hundred and twenty-three orders out of one hundred and thirty having been found within our borders. Nor is this to be wondered at, considering the great diversity of our soil and surface, lake and river, mountain and valley, wood and prairie offer a home congenial to an almost infinite variety of vegetation.

The very valuable catalogue of our native plants, published two years ago by Prof. Tracy, although containing the names of nearly eighteen hundred species, does not probably include nearly all the flowering plants of the State. The botanist may even hope to find many new species in the wilder and less thoroughly explored localities.

Among the floral families affording us the most beautiful blossoms and in the greatest profusion are the rose, the violet, the pea, the honeysuckle and the sunflower families. Many of our most exquisite spring flowers belong to the rose and ranunculus families. The first of these includes that prince of flowering trees and shrubs, the wild or sweet-scented crab-apple. Nothing north or south can compare with it in all that makes a flower completely satisfactory to the refined taste. The grace of its corymbs, its exquisitely folded buds, the structural symmetry and elegance of its open blossoms its delicate, spicy fragrance, its glossy leaves of varying shades of green, combine to render it supreme in loveliness. In the same order we find all the beautiful thorns with their snow-white or pink-tinted clusters and varnished leaves and the wild roses, the types of the family, from the delicate *lucida* to the robust and aspiring *setigera*. In the ranunculus family the clematis, larkspurs and columbine have given us some rare and valuable varieties. In violets few regions can compete with us in number of species and profusion. "I know a bank whereon," not "the wild thyme," but the pansy violet "grows"—to paraphrase

Shakespeare—than which no spot on earth can be fairer in its season; it is a steep, gravelly hillside, facing north, covered with gray-green lichen and moss, from out of which grew in the greatest abundance and luxuriance both the uni-colored and bi-colored varieties of this incomparable violet, with here and there a tuft of bright, golden buttercups to afford a contrast of color. Another and somewhat rarer violet, which is, I think, only a marked variety of *cucullata*, is very large and pure white, except for some fine purple pencillings in the throat. The yellow and cream white violets both of the stemmed and stemless sorts are abundant on river banks, and on partially shaded rocky hills.

Our most attractive mid-summer flowers belong to the lily, pea and evening primrose families. Few of these are wood flowers. Most of them court the sun and luxuriate in his most ardent beams. The golden cassia, the delicately variegated *Tephrosia* (called the "Turkey Pea" in the Southern countries) and the fragile rosy globes of the sensitive briar are open throughout the sunny hours, but as evening approaches fold their leaves and droop their blossom-crowned stalks and sleep till morning. The evening primroses, on the contrary, rouse to new energy as twilight awakens; every blossom bud stands erect, and as we watch them first one slender, strap-like sepal and then another lifts itself and turns backward, and then, with a flirt, like the sudden opening of a parasol, the broad white or golden petals unfurl and the heart of the flower is open to the breezes and the noiseless visits of the nocturnal insects.

During autumn, the sunflower family reigns supreme. Sunflower, coreopsis and solidago spreading their garnered sunshine over the fields, while the white of the clouds and the blue of ethereal spaces descend to us in the asters and conocephalum.

The heath and orchid families, while not with us, represented in the profusion that they are in the Eastern and Southern States, are by no means absent from our flora. On our wooded highlands and mineral hills several species of huckleberries and blueberries flourish, and in similar situations the rhododendron unfolds its purple chalices. In dusky forest aisles the ghostly *Monotropa* silent stands, verdureless in stem and leaves as well as blossom.

"Flowers cold and deathly pale,
No flush upon their alabaster check,
They feel no sun nor bend to any gale,
No bees their white bells seek."

Its equally parasitic but more earthly colored cousin, the brown *Schweinitzia*, (Heaven preserve us from any more such botanical names!) perfumes the air in the same damp and shadowy nooks.

All the beauties and intricacies of orchid structure, which furnished Darwin with his most interesting problems in the fertilization of plants by insects, are illustrated in the twenty or more species that may be found in various localities in our state.

While on this subject I wish to add a few words on the preservation of our native flowering plants and to indicate some of the species that will best repay our care.

Where the country is thickly settled and the woodlands and the river bottoms opened for the pasturage of cattle, the choicest species speedily disappear and the most careful flower seeker finds nothing to reward his effort. These delicate wildlings will not brook rude treatment and invasion of their homes. Yet, strange to say, most of them will bear removal bravely, if taken up tenderly and planted in congenial situations and will abundantly reward their preserver. A large proportion of our most beautiful flowers are herbaceous perennials and will appear in the same spot for many succeeding years, even though they may not propagate themselves to any great extent. Why some fail to do so, I have not discovered. It may be because they miss some agency which nature provided for their need in their native habitation.

The secret of the cultivation of wild flowers is not to cultivate them. The only attention of the kind that they will tolerate is a little skilful hand weeding to prevent the encroachments of grass and clover and a little judicious thinning to preserve the more delicate species from being crowded by the more vigorous.

They cannot, therefore be set out in flower borders with geraniums, heliotropes and verbenas, and even if they would grow there, the juxtaposition would not be favorable to the beauty of either. The all important thing is to choose the situation. It is best if partially shaded and enriched only by leaf mold. I cannot exactly say with Emerson:

“My garden is a forest ledge,”

but it is on the north side of a rather high osage orange hedge, where the natural clay soil has been deepened and mellowed for twenty years with mold of the rapidly decaying leaves. To this spot we have been for years in the habit of transferring at any season in which we chanced to find them, all the beautiful and interesting native flowering plants and ferns indigenous to the region. And verily we have our reward. The

"wild garden" may not be so gay as the contiguous tulips, peonies or roses, but it has a charm to which every visitor yields.

Here, during the first warm days of spring, we are greeted by the opening buds of hepatica, early buttercups and *Aiocanarias*. Almost simultaneously the bloodroot spreads its evanescent, milky-white blooms in company with the spring beauty and the exquisite *Dicentra*, whose clusters of waxen hearts crown the tufts of feathery, blue-green foliage. To these succeed the violets of nearly all the species occurring in this part of the state, the drooping pink and blue bells of the lungwort (*Mertensia*), and the still lovelier blue of the Greek valerian (*Polemonium reptans*). The springtime succession is kept up by the crane bills, shooting stars (*Dodecatheon*), squills, larkspurs, golden sempervivum and numerous less conspicuous species. During the heats of midsummer, the delicate white flowers of *Gillenia* and *Veronica* mingle with Turks cap lilies, *Melanthium*, *Zygadenus* and the glorious cardinal flower, crowned in autumn by a grand display of asters, golden rod and other composites. In this way, while we miss the indefinable charm of searching out our wild favorites in the nooks where nature establishes them, we have the opportunity of seeing much more of them and noting many peculiarities in their development which might otherwise escape our attention.

Again, but few wild flowers will long survive plucking. They usually droop in a most unsatisfactory manner when arranged in our vases, and hence if we wish to really enjoy them, we must visit them growing.

With our indigenous annuals, one cannot so surely count on success as with the biennials and perennials. They are rather capricious in their habits and will often persistently refuse to germinate in the places where they are sown, while plants from wind scattered seed will appear in the most unexpected spots. Fortunately only a few of them are very valuable, and we do not miss them greatly when they fail, although always glad to give them a welcome when they appear.

I have given in this article but small space to the claims of our native flowering trees and shrubs in the fear of being tedious. But there are many that are exceedingly beautiful either in flower or fruit, and they should always be considered in the adornment of a country home. They all bear transplanting well, if done late in autumn, or very early in spring, and repay such care as is given them by a perfection of development that but few exotics attain.

Let us then ever cherish our native flowers with a loyal affection; protect them as far as possible in their natural haunts, and where this

is not practicable, endeavor to preserve them from extinction by cultivating them near our homes, and, as we watch each unfolding leaf and bud, let us regard them in a spirit of the poet :

“ Your voiceless lips, oh flowers, are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers,
From loneliest nook.

’Neath cloistered boughs each floral bell that swingeth,
And tolls its perfume on the passing air,
Makes Sabbath in the fields, and ever ringeth
A call to prayer.”

THE ROSE, QUEEN OF FLOWERS.

DR. WM. A. LONG, MOUND CITY, MO.

Solomon in all his glory, with his cattle on a thousand hills, with his gold, silver and all his heart could wish, was not arrayed like one of these pretty flowers. It is not necessary to look over garden walls for pretty roses. They meet one everywhere. The wearing of flowers is a fashion deserving approval. Rose buds folded, half expanded and even fully blown, worn in their simple, green foliage, add beauty to the handsomest attire. For instance, we take Catharine Mermet with its exquisitely modulated pink ; its buds are worn in St. Petersburg ; in San Francisco ; they shine at every entertainment, and its bushes flourish in the gardens of a dozen nations.

Crimson roses are rare and the greatest treat in the floral way is a cluster of Jacqueminots with their dazzling colors. Hybrid Perpetuals are the hardiest roses. They are for all practical purposes shrubs. Once planted they continue to grow and bloom for a life-time.

I have seen specimens of General Jacqueminot, Charles Lefebre and varieties of that order, with a dozen branches, each brilliant with its

beautiful clusters of roses, glowing in crimson and maroon, richer by far than any other flowers will ever be. Hybrid Perpetuals are the hardest, largest and most symmetrical of the race. They lack, to be sure, that delicate commingling of tints so beautiful in the teas. In all other countries than ours they are the roses most sought after, crowding the tables at the rose shows of France and England and occupying the place of honor in every European garden. Of roses, then, we would say, plant closely to avoid bare brown intervals and secure abundant foliage to set off their bloom. Give them a deep, warm soil as rich as may be. Plant firmly, cultivate thoroughly and water well when dry. Simple and unexactingly as are these requirements, they are all a rose will ask to bloom in its rarest beauty—a beauty to which that of all other flowers is insignificant. Even without these attentions thousand of roses grow and blossom, nay, even flourish. With them they build in beauty and perfume. It was once thought impossible to use for ornaments any but a closely folded bud, and the prejudice was a stubborn one but has happily gone its way to oblivion with a mass of other notions belonging to the past. One of the prettiest ornaments we have lately seen was a cluster of several Bon Silene perfectly open and loose showing the light tints in the center far more graceful and easy than an artist could design.

Now we come to the ever blooming roses which commence to bloom early and continue till late in autumn, for light frosts do not hurt them.

The Teas have always been the most popular roses in America and more attention is given them than any other grown. But they are rapidly becoming the favorites everywhere. And the great rose shows of London and Lyons are rich in the flowers of Etoile de Lyon, Perle des Jardins, Edith Gifford, Madame Welch, Catharine Mermet, La Princess Vera, and our American roses, the Sunset and the Bride.

European writers all confess what we long ago claimed—the utter inability to put down on paper anything like a picture of these roses. Yellow roses on the whole are most satisfactory. Marechal Neil and Perle des Jardins so near alike and Etoile de Lyon can be worn by any one and with any costume. Many a rose discloses an unsuspected beauty when gracefully worn and there will be no one to question that the practice is a pleasing one.

Now we come to our own homes, which we ought to ornament with flowers and teach our children to cultivate and thus make home more attractive. It will keep our children at home. It will keep them out

of bad company and make home more agreeable than any other place on earth.

To plant a bed of ever blooming roses, make a circular bed six feet in diameter, which will hold about fifty roses. They will begin to bloom almost as soon as set out and continue to bloom till late frosts cut them down. After freezing weather sets in they can be taken up and packed in a box with a little dirt sifted among the roots, and put in the cellar until spring, when they can be re-set and bloom as before.

This is the season for flowers and everyone who has a bed of roses can pluck a bouquet every day. What is more beautiful? What gives us more pleasure than to look at these beautiful buds and flowers with their sweet fragrance filling the air? They remind us of the infant child budding and opening into manhood. They remind us of death as they fade away.

Bring flowers to cheer the festive board,

Bring flowers—the bride is near;

Bring flowers to cheer the captive's cell;

Bring flowers to strew the bier.

And then, as the last token of respect when earth can do no more, we strew the lonely grave with flowers, or plant a lonely bush that will forever bloom.

Then President Murray introduced the old veteran, the hero of many generations, Jessie Welch, who gave a violin exhibition in the old plantation style. He is the help-mate of Dr. Goslin, and helps that dignitary "raise strawberries with a spoon." Following this pleasant and attractive feature, Miss Cora Frye, with her usual skill, gave a recitation that delighted the audience and maintained her well merited reputation. At the close of her performance, Dr. Goslin presented her with a beautiful gold breast-pin, set in garnets, as a token of good will, because of her repeated services to the Holt County Horticultural Society. Maggie Perkins and Prof. Horn closed the session with a magnificent instrumental selection from the organ and violin. The session was instructive and interesting throughout.

THURSDAY FORENOON, JUNE 7, 9 A. M.

The morning exercises were opened with prayer by Rev. Tandy.

The Linn County local society extended an invitation to the state society to hold their next summer meeting at Brookfield. The society of Poplar Bluff asked that the meeting be held there, and Mr. Murtfeldt, for the people of Kirkwood, asked the society to meet there. The invitations were referred to the executive committee.

Mr. Murtfeldt spoke of specimens of Missouri fruits (in plaster) on exhibition at the museum in Washington, and stated that Mr. VanDeeman, Pomologist at Washington, was anxious that the society take steps to secure a revision of these specimens. He also asked that fruit growers having new, well-developed specimens, write Mr. VanDeeman, and he would see to proper transportation, etc.

The following was the report of the committee on

ENTRIES AND AWARDS:

Your committee on fruits found on the tables a large exhibit of strawberries, both of the standard, and of many of the new varieties. The size and appearance of the berries, and the number of varieties speak highly of the standing of Missouri as a strawberry growing state and of the enterprise of our horticulturists.

We make the following awards :

Best collections, ten varieties : 1st. J. N. Menifee, \$10.

Best three varieties for market : 1st. J. N. Menifee, Oregon, \$5 for Miner, Sucker State and Crescent. 2d. Dr. A. Goslin, Oregon, \$3 for Miner, Crescent and Sharpless.

Best box largest berries : 1st. W. M. Hopkins, Springfield, \$2, Belmont. 2d. J. N. Menifee, Oregon, \$1, Bubach.

Best box market berries : 1st. J. C. Evans, \$2, Capt. Jack. 2d. J. W. Maples, \$1, Miner.

Best table berries : 1st. J. C. Evans, \$2, Cumberland.

Best box Crescent : 1st. J. W. Maples, \$1. 2d. J. C. Evans, 50 cents.

Best Cumberland : 1st. J. C. Evans, \$1.

Best Chas. Downing : 1st. Mrs. J. W. Maples, \$1.

Best Windsor Chief : 1st. J. W. Maples, \$1. 2d. J. C. Evans, 50 cents.

We wish to make special mention of Longfellow berries exhibited by J. C. Evans, and of Mt. Vernon by J. B. Durand and J. W. Maples.

Mr. Henry Schnell, of Glasgow, exhibits thirty-one varieties of berries. Most of them are standard varieties, but a number are new kinds and unnamed seedlings, which show the enthusiasm of Mr. Schnell as a horticulturist. For his exhibit a special premium of \$10 is recommended.

We also have taken notice of a number of varieties of apples. At this time of the year the presence of this fruit speaks highly of the keeping qualities of Northwest Missouri apples.

We recommend a gratuity of \$1 to C. E. Schultz, Mound City, for plates of Willow Twig and Ben Davis.

\$1 to S. Blanchard, 5 varieties.

\$2 to J. M. Crider, 5 varieties.

\$1.50 to Wm. Broadbeck, 9 varieties.

Mr. S. W. Gilbert, Thayer, exhibits one plate of Alexander peaches, gratuity, 50 cents; one plate of Arkansaw Traveler, gratuity, 50 cents.

We also notice on exhibition, a fine sample of sorghum surgar exhibited by S. H. Whitner. A gratuity of \$1 is awarded.

Mr. Gilbert exhibits some of the *Bat Guano* from one of the caves of South Missouri.

The farmers living near these caves certainly have a cheap and valuable source of plant food. This guano has not been analyzed, and the experiments have not been carried far enough to determine its exact value. We believe, however, that it is very desirable as a fertilizer for all crops, and especially for fruits and vegetables.

L. R. TAFT,
J. P. REICHARD,
J. A. DURKES.

SECRETARY'S REPORT.

Secretary Goodman then made the following report :

Members of the Missouri State Horticultural Society:

Our cause is a work of love and pleasure as well as one of trials and troubles. We have reason to be thankful more than for complaining. When I see the troubles and cares of so many thousands of our people in our cities, I am glad that I live and work in the country. In the continued stress of money matters we find our farmers and fruit growers in close places doing without many things which they perhaps need, working under many disadvantages, rising early and toiling late, and yet at the close of the year find themselves with not many extra dollars in their pockets, and they complain, and find fault, put the cause of all their trouble on someone or something else than the right place. They blame nature, the government, the state, the county, and the place in which they live, and wish, if they could only sell out, to quit it and do some other business.

The other day I was talking to one of our business men in Kansas City and he was complaining of his results. "Why," he said, "to think, that after the year of hard work, money invested, money handled, running up into thousands of dollars, I have scarcely a dollar left." And he began to find fault with the times, the money matters, the tariff the country in general, because of the drouths and small crops, the political parties, and the "money kings." So when I see comfort and pleasure in a good home in the country, I feel that at least if we have not wealth, we have comfort and above all safety—Safety to ourselves, safety to our families, safety to our boys and girls who are to take up the future work. The fact is that we must deny ourselves many things; we must live economically, we must figure closer, we must look for improvements in every department of our work, we must work more systematically, thoroughly and scientifically; the time of spontaneous growth has passed and now we must have intensified farming and fruit growing, we must have more intelligent means used in all our departments of work.

ORCHARDING.

What we want now is earnest, systematic, judicious, and enthusiastic fruit growing, one which will adopt every known means to a success-

ful end ; one which is willing and anxious to use a thousand and one new facts which are being made known every year. The business of the society has prospered since last we met and the outlook is brighter this year than before. The prospect for our apple crop is the best we have had for years and our horticultural interests should take a good growth ; we should have a number of horticultural societies formed this summer in some of our best counties, and the facts of successful orcharding kept prominently before our people.

The importance of bringing out more of our fruit growers, and getting them to believe and practice what we say, urging them to give us their experience, to tell us what they have done and how they have done it, and give us the reason of their success or failure, seems to me one of the most important matters we can present to your consideration.

OUR REPORT.

Published some weeks since is a great help in awakening an interest in our work ; the call comes every day from all over our state for copies of the work and oftentimes gives some interesting fact, or some item of experience. Less time was taken in issuing our report this year than before, and we trust that we can soon have matters so arranged that we can print immediately after our winter meeting. The call for the report outside the state continues to grow and many hundreds of copies have to be mailed to parties who never even think of enclosing stamps for the same. Another year it may be necessary to ask for an increase of the number of books published in order to supply the demand.

FRUIT STATISTICS.

It seems almost impossible for us to obtain, or even undertake, yet it would seem this year that we should have some direct work and information in regard to the amount grown and sold. A combination with our State Board of Agriculture and a report from all their members as well as our own, would give a very good report and a correct one of the value of our fruit crop. Missouri has made no great noise or fuss about what we are doing, but silently and quietly our orchards have been planted and we do not realize just how much we have done as a state in the progress of this work. It would astonish you to go about the state and see the many thousands of orchards planted, being planted, and just beginning to bear. While others are doing a great deal of talking, we have been quietly and surely planting and the result will be, and is being felt, so much so that I am surprised wherever I go, I see so many new orchards covering

our lands in every direction; and yet we do not know one-half or one-tenth part of the capabilities, and especially, adaptability of our soils to fruit growing.

With almost every variety of soil, almost any altitude we may choose, almost any desired slope or concidences; a variety of climate and climatic changes; we have, taking the state as a whole, one of the grandest prospects of any of our states.

FRUIT SHOW.

The fruit show I shall allude to once more, and probably the last time. From some two or three letters received from the Secretary of the exposition building at St. Louis, I went down to meet him and see what arrangements we could make about it. The result is that space is much sought after and held at so high a price that we could get nothing promised except the space. But he has offered us such a fine room and such space that it does seem as if we must do the work now or never. The room offered is one 60x80, opening off from the music hall and close to the art gallery. It is well lighted and has room for six or eight county exhibits. It could be well decorated and has room to show some of the most artistic work known in the manner of display. I visited some of our florists and have enlisted them in our work; they have offered to give us any assistance in their power; and if they will take this part of the work and decorate the hall nicely, it will relieve us very much. I have seen the Cold Storage Co.'s at both St. Louis and Kansas City, and have their offers to keep our fruit for us. I have not visited our R. R.'s. yet, or our Express Co.'s., for I was waiting final action of this meeting and a report from each of our county societies. I have no doubt but that we can get the assistance of our different railroads and express companies to give us free transportation over their lines for all that we shall send of our fruits or plants. It almost makes me faint-hearted when I begin to think of the work to be done, and the time to be spent in such a work, and yet it does seem to me that if we are ever going to do it, now is the time, and we certainly have the place. It will take hard work from each of our local societies and counties to bring this to a successful issue, and we can think of nothing else but a successful end of the plan. Whatever we decide, therefore, let it be with the determination to succeed at all events, and make it a showing worthy of our state, or let us drop the matter entirely. I think our county courts should take hold and make a good liberal appropriation for the work—

at least \$200 for each county. While on these business matters I will take the liberty of bringing another very important matter before you.

EXPERIMENTAL STATION.

Last week the President of the State Board of Agriculture, President of the University, Master of the State Grange, President Evans and myself, made a visit to Columbia to look into our Experimental Station. We had no horticulturist, entomologist or botanist. The whole matter was taken from the Agricultural College and put into hands entirely distinct from those who had had charge of the matter on the farm, and the experiments were simply on corn platts and its value as food, etc. We found no experiments being tested by them on the important fruits we are so much interested in, or on the insects we are so much pestered with, or the plants we know so little of. So it was our province to ask them to give us a department in which each of these matters may be tested, so that we may not be obliged to do all the work ourselves. This was what we took to be the object of this appropriation of \$15,000 per year by the government. Used judiciously and in connection with the works done in the horticultural department, you can easily see how very much might be done. The pay, or at least part pay of each worker would be borne by the state, and more of this money could be used for strictly experimental work. The same may be said of entomology and botany. Now, suppose it be impossible for them to pay all these matters, let them, for instance, give \$1,000 to horticulture ; \$1,000 to entomology ; \$1,000 to botany. You see by this arrangement that some one who is competent and is doing this work under other directions and other pay, would and could devote their time and some of the means to the study and investigation of certain lines of work, which they now find impossible. Those who have charge of this class of investigation we know are enthusiasts in their line, and if we can just give them so much money and tell them to use it to their best advantage and the best interests of our state, you may be sure that you will not be disappointed. What we want then at the Experimental Station is :

1. A good director; one who understands what is needed to be done and how to do it ; one who is well posted in what has been done, so as not to go over the same ground again; one who knows how to practically apply what scientific knowledge each may have in his line of work ; one who will keep up every department of his work and have it well done.
2. A good chemist who can do his work scientifically and satisfactorily, and in such a way that it can be intelligently applied

3. A good agriculturist, who can apply the knowledge given.
4. A good horticulturist.
5. A good entomologist and ornithologist.
6. A good botanist,
7. A good veterinarian.

While we are experimenting on our plans, we find many all through our state engaged in the same work, each on his own plan and manner; each for the satisfaction of himself.

We have with us one who has made the study of insect life a specialty, and who has made a collection of insects which will be valuable for any institution. A thousand dollars given her to study more completely her specialty, would go a long way in reaching the end we want.

Do you know that all over our state we have men experimenting for themselves, costing them hundreds of dollars, and that this is done over and over again; when if such work could be systematized and published, all our people would have the results without cost?

NEW STRAWBERRIES.

Not many days since I went down to Carthage to see some seedling Strawberries. On the ground of B. W. Speece I found a number of seedlings of his own production. I had seen a berry patch when it was in its prime in very many parts of our state. I had seen them when they had 200 bushels per acre. I had seen small patches where it would seem as if they could hold no more; but I had never had the opportunity of visiting such a grand sight and show of seedlings as were on his place. Among a number of them, two in particular, struck me as very serviceable—one the "Perfection," the other the "Beauty"—one a pistillate, the other a staminate. The vines were as truly loaded as it was ever my pleasure to see. With such much lauded varieties as Bubach, Jessie, Jewell, Cumberland and Sharpless, I found these fully above them in size and productiveness—all planted side by side and given good field culture only. The two varieties seem to be a cross between Sharpless and Capt. Jack and Sharpless and Crescent; both quite firm and of good quality, suitable for both shipping and marketing. As I reported to their local society, I can see no reason for their sending away for the newer high-priced varieties, when right among them, there were varieties of great value and adaptability; and certainly they should try them before looking farther. In fact, I should like to see them tested in other portions of the state. Mr. Speece has offered them for testing purposes only to our fruit growers of the state.

Our finances and expenses are about as usual. The greatest expense being the postage on reports and the printing bills and crop reports. I find our work and our society on the gain continuously, and as the fruit growers of the state take more and more interest in their work, more and more do they think of our State Society and its importance as an adjunct to their business. As this continues and their interest grows, our work improves and will become systematized, until we are united in one strong band for the advancement of our cause ; until we work out some of the theories to practical results, and until we can ask and get all the help necessary for our work.

Following is the receipts and expenditures of our work : Receipts, \$126,00 ; expended, \$268,62. The report was received and referred to Finance Committee.

MISSOURI STATE HORTICULTURAL SOCIETY.—EXPENSE ACCOUNT.

January 8, 1888, Cash received on warrant No. 117.....	\$100.00
June 5, 1888, Cash received on membership.....	26.00
	\$126.00
January 12, 1888, Postoffice bill No. 1 for January.....	\$30.52
February 21 " Postoffice bill No. 2 for February	23.30
" " Expenses on ten Illinois reports85
March 6, " Postoffice bill No. 3	10.00
" 15, " Railroad fare to Jefferson City and return	8.55
" " 300 Arbor Day circulars and envelopes	1.00
" " Board at Jefferson City, bill No. 4	22.00
" " " Cuts of Kirksville and Kidder, bill No. 5	12.55
December 21, 1887, Railroad certificates and circulars, bill No. 6.....	5.00
April, 1887, Stationery for officers, bill No. 7.....	28.50
" " Postoffice bill No. 8	15.00
" " Express on reports, \$1.10, .85 cents, \$1	2.95
May 1, " Postoffice bill No. 9	9.80
" 8, " 1,000 mile ticket, Missouri Pacific railroad	25.00
" 8, " Expenses at St. Louis	4.20
Pencils, tablets, bands, etc., for meeting	3.60
" 14, " Freight on reports from Jefferson City, Bill No. 10.....	13.90
" 16, " Programme \$12.50, fruit report \$2.75, bill No. 11.....	15.25
" " Badges and printing bill No. 12	6.65
" " Weather service, bill No. 13	20.00
	\$268.62
Cash received.....	126.00
	\$142.62
June 5, Postoffice bill for May, bill 14.....	66.90
	\$209.52

The report was received and referred to the Finance Committee.

Your committee hereby begs leave to report, and state that they have examined the accounts presented them and find the same correct as reported.

N. F. MURRAY,
J. B. DURAND,
J. A. DURKES.

OUR FUTURE.

What then of the future of our society and its work? Why we simply expect to see matters go as usual, only in a more earnest and enthusiastic way; we expect to see our society grow in influence and in power as the importance of our cause demands; we expect to see our local societies increase in number and in interest until we can have most of our fruit growers anxious and willing to let the world know what are our wonderful advantages and prospects.

To every fruit grower of the state let me say to you, that as you take an interest in this matter, as you organize into societies, as you make the social and practical a feature of your society meetings, just so much more will you take an interest in your work; just so much more will your work seem easier. If we would, as fruit growers and farmers, make this a part of our life and work; make it a part of our study and our school, so that we might not drop into the old ruts, as we are so apt to do, we would find a different light put upon all our work. We would be willing to work the very best we can, the very hardest we are able, early and late, because we look forward to a day of recreation and rest—of study and pleasure. If we spend a part of our time in our school of study, we will be better able and more willing to do the hard work we have to do. I am a strong advocate of better, more systematic, more intelligent work in our fruit growing—intensified work—an increase of knowledge in any and every department of fruit growing. Of what use are all these advantages unless we use them? Let us take hold of this orcharding in such a business-like way that we cannot fail of success: Plant with reference to the money there is in it, plant commercial orchards, plant in abundance, hundreds and thousands of acres in any one place so that it will be an object for any one to come and buy, plant, not as we have been doing, but for quick and profitable returns, with good and profitable varieties in large and abundant quantities, and my word for it, you will find it one of the most pleasing and most profitable business you ever undertook. We will find our society growing and improving, and working in such an important and influential way, that we will have but to speak to be heard.

And now, dear friends, let me urge you and advise you that as you take an interest in the work of the local and state societies; as you study all these matters you will find your work easier and more profitable; you will find your interest growing and life more of a pleasure—just that much more as your interest is in the work. Let us all then,

with an earnest will and strong arms and clean hearts, stand up for our fruit interests, our State Society, and our love for the cause, and we will be better, happier and more contented than ever before.

L. A. GOODMAN, Secretary.

The Treasurer, Mr. Holman, submitted his report showing a balance in his hands of some \$371.18, which was referred to the finance committee.

TREASURER'S REPORT

SPRINGFIELD, Mo., June 10th, 1888.

D. S. HOLMAN, JR., IN ACCOUNT WITH THE MISSOURI HORTICULTURAL SOCIETY

Date.		Amount.
	DR.	
Jan. 1, 1888.	To balance on last report, 1887	\$ 225.36
" 21, "	Cash from state treasurer.....	1,000.00
	CR.	
Jan. 10, "	By cash paid, warrant 117, expenses of secretary's office	\$ 100.00
" "	" " " 116, expenses of delegates	21.00
June 7, "	" " " 119, premiums at June meeting.....	59.50
" "	" " " 120, officers' expenses.....	37.86
" "	" " " 121, sec'y's expenses as per account rendered	209.52
" "	" " " 122, secretary's salary.....	400.00
" "	" " " 123, delegates' expenses	26.30
" "	Balance charged in account	371.18
		\$1,225.36

Miss Murtfeldt, the Society's entomologist, then read the following highly interesting paper, which brought out a healthy discussion and exchange of opinions on the mischievous pests:

ENTOMOLOGICAL REPORT FOR THE SPRING OF 1888.

BY MISS M. E. MURTFELDT, KIRKWOOD, MO.

Among the destructive insects to which my attention has been called by others, or which have come under my own observation, are several species which have not previously figured in the records of the economic entomologist, as well as a large number of more familiar pests.

Among the latter is that long known enemy of the nursery and young orchard,

THE APPLE-TREE ROOT-LOUSE,
(*Schizoneura lanigera*, Hausin.)

During February and March I had a number of communications concerning it; among others one from our honorable secretary, who wrote as follows: "On a visit to our fruit farm in south Missouri, I find some of our nursery trees completely covered with the root louse, so much so that in digging them there would be a perfect mass of white wooly matter about the roots, more than I had ever seen before in all my life—the ground seemed literally filled with it. On the roots were the hard knots usual where the root louse works, but so much of this that I was frightened and doubted if the trees were good for anything; they were well-grown two-year-old trees. We are making the following experiments with them: The roots of two trees are dipped into water and then dry ashes are scattered on them as long as they will stay: the trees are then buried. Two more trees are dipped into strong lye, and then planted. Two more are dipped into a strong decoction of tobacco and planted. In a couple of weeks I shall know which kills the louse and what to do, as I shall dip every one before planting and we shall plant 100 acres this spring."

As Mr. Goodman inquired if there are any other remedies that he could use, I recommended drenching with moderately hot water—120 degrees Fahrenheit. I have not been informed in detail concerning the results of these experiments, but Mr. Goodman mentioned a few weeks ago that some of the young trees had died under the treatment to which

they were subjected. Perhaps he will be kind enough to give us the particulars as a supplement to this report.

There is nothing very recent concerning this insect in entomological literature. The most complete account that we have of its habits was published in the first volume of the American Entomologist, page 81, prepared, I think, by Mr. B. D. Walsh, the senior editor and first State Entomologist of Illinois.

Drs. Fitch and Harris had previously described the aerial form which inhabits the trunk and branches of the tree, but they were unacquainted with the root feeding form or considered it a distinct species. Mr. Walsh himself entertained the latter opinion, but in this none of the later authors agree with him.

In his third Missouri report, speaking incidentally of this insect, Prof. Riley says: "It is conceded on almost all sides that the insect was imported into Europe from this country, and there is now every reason for believing the two insects (the Wooly bark louse and Wooly root louse) identical, or at furthest they can only be considered as varieties of one species. Yet, while in this country our root louse is very injurious in the west, and only exceptionally found on the limbs above ground, (though more often so found in the eastern states,) all authors that we are acquainted with have spoken of it as occurring solely on the limbs in Europe; though Mr. Lichtenstein informs us that he has found it on the roots also, and that it caused in those cases, just such swellings of the roots as our root louse does here."

The experience of the proprietors of the Olden Fruit Farms, has proved, I think, that sandy and gravelly soils are particularly favorable for the development of this insect on the roots of young trees. It certainly does not make much headway in stiff soils and I have also observed that it is often quite abundant on the trunks and branches of trees during wet seasons, and at such times the roots would be almost or entirely free from its presence.

The wingless lice are of a pale yellow color, with darker heads, legs and antennæ, and have the hinder part of the body enveloped in a mass of bluish white, cottony matter which is often secreted, especially on the roots, in such vast quantities as to completely fill the soil. They have no honey tubes, but a sweet sticky fluid is often mingled with the cottony secretions. The beak is long and fine and the effects of its punctures is seen in the nodulose swellings and knots in which the vegetable tissue becomes perverted and hardened, thus interrupting circulation and causing decay. On the trunk the insects cluster about the

axles of the branches and around wounds made by pruning. Mr. Walsh says: "Where the insect works upon the naked trunk, it often causes a mass of little granulations to sprout out about the size of cabbage seeds, thus producing on a small scale the same effects that it does upon the roots." I have repeatedly made the same observation. The winged insects supposed to be the true males and females, appear in October. They are black in color with a slight prominence on the abdomen; wings broad, and transparent, with few veins and an opaque cell on the anterior margin near the tip of the upper pair. The eggs are too minute to be discovered without a lense and are laid in cracks of the bark near the ground. Washing the tree trunks with strong soap suds or much diluted kerosene emulsion will kill the eggs. This insect has several natural enemies of its own class. One or two minute chalcid flies are parasitic in its body and the larvæ of a small lady bird beetle (*Scyphus*) whose body is so covered with soft downy tufts, that it is difficult to distinguish it from its victims, destroys a great many. Its most voracious foe, however, is a maggot-like larvæ of a small syrphus fly (*Pipiza Radicans Riley*). The larvae of one or more lace wing flies also attack the aerial form, and, unless it is very abundant, these natural enemies keep it in check. Mr. Saunders in his "Insects Injurious to Fruits," says that sweet apple trees are especially liable to the attack of this form, and recommended as a wash, a solution composed of five pounds of fresh lime with one pound of sulphur, dissolved in two gallons of boiling water.

THE WHITE GRUB.

(*Lachnosterna fusca. Frohl.*)

The history and transformations of this root-devourer are well known to every agriculturalist, but there is always something new to learn concerning its habits and adaptations.

Anent this insect, a letter from Mr. Henry Schnell, of Glasgow, Missouri, tells the following, rather discouraging, story:

"Last fall I plowed under some manure that was mixed with sawdust and had been lying in heaps for several months and I find that the May beetle, the parent of the grub worm, had deposited her eggs in it by the thousand. I had planted the ground to strawberries and while the men were finishing up noticed that where they dug out manure it was full of small grubs, and I fear they will take all the plants. I think, at a rough guess, there are about five hundred grubs to one strawberry p'ant."

I doubted that the May beetle would deposit her eggs in such situations, as the larvae have only been known to feed on the roots of growing vegetation, but the specimens accompanying the letter had all the characteristics of the young larvae of (*Lachnosterna fusca*.) It is known that the parent beetle prefers to consign her eggs to freshly plowed ground, as being more readily entered, and the compost heaps mentioned, so largely composed of vegetable matter, probably afforded an attractive nidus. The young larvae must have subsisted, at first, on the sawdust. It seems almost incredible that they should do so, and I am still inclined to believe that they are the young of some other species. If they prove to be the white grub, the strawberry plantation will soon show the effects of their work. The object of this notice is to warn gardeners against the use of fertilizers like that described, unless they are sure that it is free from worms that may prove destructive.

THE CABBAGE CURCULIO.

(*Ceutorrhynchus napi*.)

I have also had considerable correspondence, during the spring, with Mr. Schnell, concerning an insect which has not yet been "posted" in works on Economic Entomology, but which bids fair to rank as a first-class pest.

Under date of April 26th, Mr. Schnell wrote: "I send you by mail, to-day, some cabbage plants that are full of some kind of larvae—the smaller ones on younger plants only show the puncture. It is a new pest to me and if you can give me any information in regard to it, I shall be very thankful."

The plants enclosed, showed considerable fretting around the crown and along the ribs of the first leaves, but I could not find the larvae mentioned. A few days later, Mr. Schnell wrote again: "Since sending you the cabbage plants, I have taken time to look closer and have found the mischief-maker, and send you by mail, three of them, also some cabbage plants or hearts, showing where they have worked. I thought perhaps you could prescribe a solution that would kill them. They have ruined over one-half of 40,000 plants in my hot beds, and I would like to check their depredations another year. Since finding them they prove to be the same beetle that I was troubled with two years ago, but at that time they were on plants in the field, and I saw none in the hot beds. I hand-picked them and was not troubled any more as they were not very numerous. They drop to the ground as soon as mo-

lested. I saw none at all last year. How would a good salt dressing do for the beds, after taking out the plants, to kill the larvae that may be in the ground? Have you any idea how long it takes them to form the beetle?"

This letter was accompanied by specimens of a curculionid beetle, somewhat shorter and thicker than the plum curculio, of a silver gray color, without humps, but showing under the lense a faintly ridged and striated surface. In its perfect state, this insect punctures the crown of the plant, and of the principal veins for food, often seriously injuring the latter, if not causing its death. It also drills a cavity in the side just at the surface of the ground, in which it deposits its egg. On some plants I found two or three of these punctures. The larvae work into the heart of the plant and bore downward into the root, causing its speedy death. Many of the plants set out by Mr. Schnell contained these larvae and consequently did not survive, occasioning much loss in time and labor.

Specimens of the beetle were submitted to Dr. C. V. Riley, of Washington, and by him kindly determined as above. Sufficient time has not yet elapsed for me to ascertain the period of its transformations nor to develop other important points in its history. This I hope to do in the course of the present season. As I have needed all the specimens received as subjects for study, I could not very well test insecticides upon them, but I think that the arsenical solution for which Dr. Goslin has given us the formula, might prove a good remedy, and could be used on the young plants without the slightest danger to the consumer of the vegetable later in the year.

As regards the hot beds, I suggested to my correspondent to drench them with boiling water, as the salt dressing might prevent the growth of other plants for which they would be needed. I am under many obligations to Mr. Schnell for specimens and for the trouble he has taken in making observations which will be of use to me in preparing a history of this devastator.

THE WHEAT-HEAD ARMY WORM.

(*Leucania Albilinae Guen.*)

Several species of cut worms have been unusually numerous this spring in vegetable gardens around St. Louis, and at this writing the species above named is doing great damage, not only to small grain, but to corn and sorghum.

A neighbor who has just cut his rye green for feed, told me that the bottom of the wagon box after the rye was unloaded would be lit-

erally covered with the worms. After the rye was taken off the worms appeared in his early sweet corn and did great damage, boring down into the center of the stalk and perforating it. The insect is found in almost every garden in Kirkwood, and will occasion much loss and delay in the sweet corn crop.

Prof. Riley gave the first account of the destructive habits of this insect in his 9th report on the insects of Missouri. The larvae there figured are much lighter in color than any that have come under my observation this spring but the light and dark lateral stripes and broad dark stripe outlining the V-shaped face, and the mottlings on the pale buff cheeks, indicate the species without much question.

This worm is not so large as its first cousin, the migratory army worm, when full grown, but little over an inch in length and about one-fifth of an inch in diameter. It is prettily striped in pale yellow, buff, and brown, having, in my specimens, a leaden blue shade on the back. It feeds for about three weeks before attaining its full size, enters the ground to transform, and the second brood of moths appear in July. It has several parasitic and other natural enemies which are our chief reliance against its undue increase.

The plum curculio, as I anticipated last fall, has not appeared in sufficient numbers in the vicinity of Kirkwood to do any appreciable injury. A few plums show its crescent cuts, but not within my recollection have cherries and peaches been so absolutely free from its attacks, and trees of these fruits are bearing heavily with us.

Many orchardists of this locality are spraying their trees with Paris green and London purple. They seem more afraid to handle the pure arsenic, although it is vastly preferable on many accounts.

I am using, for experiment on a small scale, a solution of arsenic in ammonia, dissolving one ounce of the arsenic in a quart of aqua ammonia, and using a tablespoonful of this in two quarts of water. I think it will prove efficacious and the ammonia will stimulate the growth of the plants to which it is applied.

Messrs. Murray, Goodman, Gilbert, Blanchard, Goslin, King and others spoke on the root louse and other insects. But little damage was reported in this section of the state from the root louse.

Mr. Blanchard reported some injury, as also Mr. Browning, of Mound City, Mr. Gilbert, of Oregon County, reported some damage. He said he found trees bought from the Humboldt, Tenn., nursery, largely infested by this pest.

Mr. King, of Andrew County, thought lime, ashes, etc., a good exterminator.

Miss Murtfeldt thought arsenical preparation might do some good, worth a trial at least. The lady exhibited specimens of grape cane infected with a louse species not yet described whose history is unknown to her—also a case of insects that worry the fruit grower. This lady is a valuable member to the society—the truth is, no society can prosper without women. In the language of Toodles : "They are handy to have in the house."

Mr. Goodman thought the Society should offer premiums for collections of insects, and thought it especially good work for young people.

Mr. Chubbuck, of Co'man's Rural World, thought the Society could well afford to employ Miss Murtfeldt to compile a work on the "Pests of the Fruit Grower," and the matter was referred to the proper officers of the Society.

Miss Murtfeldt thought it futile to spray for the plum curculio.

Mr. Sam Miller thought tar smoking the true exterminator for this pest.

Mr. Tandy also thought tar was just the thing.

Mr. King, of Andrew County, thought a chicken yard was just the place to grow plums.

ARBOR DAY

was talked up by many of the members, and the opinions and expressions seemed to indicate an increase of interest paid on this day. Many school districts had ornamented their school grounds this year. The society urged the people to plant trees not only on school and church grounds, but along the highways. The Hard Maple, Norway Maple, the Elms, Russian Mulberry, Box Elders were strongly recommended. The following letters were read :

SULLIVAN, Mo, MAY —, —88.

L. A. Goodman, Westport, Mo.

In the work I don't see anything on root blight. I consider it the worst drawback we have. So far I have found no remedy, and all I have written to, don't come near giving cause or remedy. Some places it is worse than others. All kinds affected, Ben Davis the worst. Sun scald and flat head borers are the next worse trouble.

H. R.—9.

Iron ore land is never troubled with root blight, hence it must be in the land. I have replanted 4 times in the same place. I find the trouble in different counties.

To Remedy Sun Scald:—Head the tree southwest, plant sunflowers on the south side of the tree, and give good cultivation.

I would like to have these two questions discussed. Nothing keeps me away from the meeting but poverty and sickness.

I have several new seedlings that are very promising—one borer-proof and keeps well and No. 1 quality. We want to make sure they are better than what we have (too many kinds now.) Two kinds seedlings have been propagated in Franklin county for 30 years, by Richlor, on Big river, and are the best early and late fruits I know of.

Native persimmons are worthy of cultivation; sure crop; ripening September until December. Everything fattens on them.

To raise fruit one must have plenty of chickens birds, and bees. Plant mulberries and wild cherries. Birds love them in preference to any fruits. All birds do more good than harm, except the hawk and English sparrow. We can't set too large a bounty on their heads. We recommend that a prize be offered for the best way to exterminate them. It is the worst drawback in raising chickens and fruit; also prizes for the best essays on different subjects pertaining to fruit culture—not more than three pages each—subject, short and to the point. The apples recommended by the society should be copied by the county papers.

C. H. ENGLISH.

BROWN BRANCH, Mo., MAY 28, 1888.

This is a good fruit producing region, but people will not try. A few young apple orchards half tended is the rule. Berries they won't have; budded peaches very few, though there is more interest than formerly.

Borers are bad; Wolly Aphis are bad and plenty of them. Is there any remedy for them? I would be glad if the State Society would discuss the Wolly Aphis and the knots on nursery tree roots—generally on the union of the root and scion, and what I call a bunch of bastard fibrous roots sometimes attached to the main roots—often on side roots. Questions—are they any particular damage, and is there any remedy?

Respectfully,

M. J. SMITH.

FAYETTE, HOWARD COUNTY, MO., MAY 24TH, 1888.

*To the President of Missouri State Horticultural Society and Others
Convened at Oregon, Mo.:*

May I say it would afford me great pleasure to be present and enjoy your annual gathering and discussions on horticulture, but am providentially hindered, but would give you an item of experience on Quince Growing :

In my native State, New York, we grow fine quinces, and when I found in the old garden in my place here thrifty quince bushes, but bearing no perfect fruit, I wondered why it was, little thinking it was so far removed from either ocean or a salt water atmosphere; but perusing a horticultural paper some years since, and finding a Mr. N. Ohmer, of Dayton, taking the premium in the State of Ohio on best quinces, I wrote him for his experience in quince growing, which he kindly gave me, saying the only secret was a quart of salt hoed in about the tree early in spring and then another quart applied the same way when the quinces were about as large as a robin's egg, sowing the salt broad-cast as far as the roots would run. I followed instructions and was rewarded with a full crop—149 quinces on one tree the following fall. I have now something over 100 quince trees growing in orchard and garden, and those that are old enough are now showing good prospects of a crop this year ; the salt is a good preventive of borers in trees as well as a special fertilizer.

All along the Atlantic coast as also in California, Oregon and Washington Territory the quince is at home and yields abundant crops. One more word on ripening the crop : One or more heavy frosts are requisite to the perfection of the fruit; it will endure unharmed more cold weather than a Jeniton apple.

A. SPENCER WOLCOTT.

WILLOW SPRINGS, MAY 17TH, 1888.

Mr. L. A. Goodman, Secretary, etc.

DEAR SIR: My orchard is too young to bear, so I send, in place of filling your blank, the

EXPERIENCE OF AN AMATEUR.

In November, 1875, I left the land of lakes and blizzards for the South Slope of the Ozarks, intent on engaging in fruit-growing in a small way. "They" told me to "plant and wait" was all one had to do. I 'planted and waited.' The apple borer did not "wait," neither did the peach grub—so I lost nearly one-fourth of my trees; then the rabbits finished a few more, when a great and good editor advised me to "paint" my trees with lard and sulphur, I plied it on thick, and my peach trees are now dying. I am now possessed of less patience to "wait," am not nearly so handsome as I was, but I am infinitely wiser! While "all you" are having a "powerful" good time at Oregon, I shall be "smearing" a barrel of soft soap and carbolic acid on my trees—building log fires in the orchard, etc., to frighten off the beetles. This done, I will treat the roots of each peach tree to a fourth pound of tobacco, then build a wire and picket woven fence to head off the rabbits. These conquered, I hope to erect a stand-pipe, from which, with hose, I can spray to the death, at a moment's notice, the codling moth and curculio.

I don't think the Ben Davis apple fit to eat, and I don't know how to live and grow any other kind. Tried to get a sample of Shackleford, but failed. Don't like to plant them, till I know more of them; can the Society recommend them as better than "Ben" to eat and an equally sure and heavy bearer? Blackberries loaded with bloom, ditto raspberries. Pears on Duchess all fell off; frost on 14th (and more expected to-night, 17th May), I think did the work. Cherries about ditto. Plums only on my Robinson and wild trees. Strawberries hurt by drought and winter. Currant bushes nearly all died, because they don't like the sunshine of July and August. Gooseberries come up "smiling" for more sugar.

The nursery agent is a "fiend." He packs good trees outside and culls inside the bundle, and is gone before the sheriff can catch him. Culls at one cent per hundred are dear—"old oak or new oak!"

Yours truly,

S. P. CONNER.

MR. L. A. GOODMAN, *Secretary Missouri State Horticultural Society.*

DEAR SIR:—I regret that it will not be possible for me to meet with the Society at Oregon, June the 5th, and I wish to again express thanks for courtesies received from the Society, and to say that we now own a miniature farm in the suburbs of Sedalia, and that I am going to try my hand at floriculture and horticulture, and expect next year to be able to give some practical results of the experiment.

Will you kindly please to thank Mr. Laughlin (for me) for the splendid defense of the birds which he published some time ago in the *Rural World*. These feathered benefactors of the human race are being so cruelly and wantonly sacrificed in all parts of the world, that I am in favor of instituting Audubon societies in every neighborhood, town and city in our land, for the protection of the defenseless warblers.

When we first moved into this new home the matin songs of a grand chorus of birds woke us from our slumbers at the dawn of each day, but soon the crack of the sportsman's gun was heard daily; until now only a few birds remain and they are shy and seem to be in absolute terror of every human thing they see. Robins, blue birds, martins, red birds, the little grey larks, the mocking-birds, all driven away by the wanton foolishness of a man with a gun and no intellect to guide its use.

I have decided *never* to wear a hat or bonnet with a bird's wing fastened upon it, as long as I live, and I wish there was something more that I could do to help protect the beautiful birds which help so much to brighten and cheer the world, not to mention their value as insect destroyers. Sometimes I almost find myself wishing that these careless slayers of the innocent might be confined on a desert island in mid ocean where no bird ever tarried and no flowers ever grew. There ought to be some punishment for them and when women begin to legislate, I hope

the first law they may ratify will be one to punish very severely the shotgun idiot who sneaks about shooting every bird he can see.

With kind regards to the Society in general. Fraternally,

MRS. G. E. DUGAN.

"MAY MYRTLE," Sedalia, Mo.

To the President and Members of the Missouri State Horticultural Society:

Pardon me if I state as follows, as it may remove some erroneous impressions.

As a member of the Committee on New Fruits, I beg leave to make the following short report on the subject assigned me. It is but little that I can say at present about any of our newer fruits, but hope of being able to do the subject due justice by the time of our winter meeting, I have tried a few of the newer strawberries the past season. Cornelia fruited for me this season, but, though a fair berry, does not come up to any of our leading sorts. Jessie, we got some plants early last fall and by careful nursing have brought them through the winter in fine shape; this spring, however, every plant died. Warfield No. 2, we have purchased this spring one hundred plants. They were excellent fine plants and reached us in fine condition. We planted them with a great deal of care, but to-day we have not got half a dozen good plants left, though other sorts planted at the same time, have done fine. What can be the cause I do not know.

About other new fruit I can say but little at this time. About the fruits imported from Switzerland, to which I have referred in my last reports to the Society, I will say that a number of them have not yet been positively identified. So I expect to find them all and see what they are. In order to keep others from being mislead about the matter I will here give Mr. Berkman's views on a number of the varieties:

"*Louise Bonne d'Avranches*, or Bonnie Louise d'Avranches is the name of the variety cultivated everywhere as *Louise Bonne d'Jersey* (see Downing's Fruit Trees of America, last edition, page 805). It has been described by Prevost in 1839, but was cultivated at Avranches at the end of the last century. It is therefore one of our oldest known kinds.

Olivier d'Serres originated with Mr. Boisbund of Rouen, France, about 1852, of rather doubtful value; I planted it in 1861.

Gen. Tothben. This I received in 1859 from the originator, Mr. Fontaine, Gheling, Belgium; I planted it in 1861. It is a large fruit, strong, but coarse and inferior and was rejected long since.

In 1864 I spent some time in Switzerland, where I had been before, and gave particular attention to the pears and apples of that country and although the quantity of immense size pear trees is astonishing, yet I failed to find any native seedling that was of any value. The apples which are grown there as table sorts are nearly all old well known sorts with local names given to them. In the list you give there are many sorts thus rebaptized, viz : Ananas Reinette, Winter Zitronen, Parisie Ramboue, are all old well known French sorts and fully described by Mr. Downing. The lack in many parts of Europe of pomological societies, makes it difficult there to obtain reliable information as to varieties and has caused the endless local names for well known fruits, which give our committee on nomenclature and synonyms such endless work.

Yours, very truly,

P. J. BERKMANS."

Keiffer and LeConte pear trees are making fine growth this summer with some fruit, no blight yet, though I have seen blighted trees of the former on two occasions in this state.

Conkling and Vicars I find I have not got true, they have their first fruit this year on my place.

Respectfully submitted,

F. LIONBERGER.

THURSDAY, JUNE 7, 2 P. M.

Secretary Goodman read a paper from Mr. Pfeiffer, of Sedalia, on Artistic Arrangement of Flowers. He thought the old custom of hand bouquets was not so popular at present as basket and design arrangements.

Dear Sir:—I beg your pardon, while I, as called for in the program of your Oregon meeting, must excuse myself for not coming in person to join in your honorable body of Horticulturists.

To show my love to the refining work of Horticulture and Floriculture, I have written a few words on the subject, attributed to my execution, which you will please find herein enclosed.

Please, if you as the committee on this part, think it well the essay to be communicated to the members and your audience, read it for me and accept my thanks.

Our prospects for fruit crop is not very flattering, except grapes may furnish a good result. My Marianna plums bear the first time here and are just now double the size of the Wild Goose.

Very truly yours,

PHIL. PFEIFFER.

Ladies and Gentlemen:

I see in your program, and in papers here, on the lecturers for the meeting at Oregon, on the 5th of June, my name mentioned in connection with an essay on "Artistic Arrangement of Cut Flowers" in bouquets, etc. Not being a florist as I ought to be, to master this subject correctly, and not wishing to ignore your call, I will give my experience from what I have read and done really in arranging such work.

There is no doubt that the Tea rose is the queen in floral work. Its fine shape, delicate tint of colors, sweet fragrance and lasting properties, place it at the top of any style of floral work. It can be had the year round and so really a first-class bouquet or floral design can not be made without some Tea roses. Next to the Tea rose, the Carnation, the Calla Lily, the Lily of the Valley, the Violets, the Pansy, with all its new and beautiful colors, the rich Crysanthemum, the English and Paris Daisy, the Boquet Dahlia, the double white and crimson Asters, the Ferns and Smilax are the proper flowers for bouquets, baskets and designs. The bouquet style however, has made room for the flower basket in its various shapes and

styles. Only three bouquets, against fifteen baskets and six other designs, filled with the above flowers, we have made to be presented to our lady graduates of our Broadway school, on the 24th of last month. The basket is much the handsomest and its various, neat artistic forms; allow to the lover of the beautiful flowers, a vast scope in which to suit his taste and general propriety. In the bouquets, the flowers can hardly be shown as well as in the basket, where a loose and individual arrangement should prevail and easily can be shown. A nice green border of Ferns, Rose Geraniums, or leaves of the Maiden Hair tree, to line the edge, followed in the circle, (as the season furnishes the flowers) either with Mad. Plantier rose buds, white Carnations, Orange blossoms, Feverfew, small white Crysanthemums, white Asters or Balsams or white Pansies. A third row of pink blossoms alternately mixed with some brilliant colors of the new imperial or French strain of Pansy blossoms, makes a very pleasing effect, to a vivid bright crimson or scarlet, or a bright rose colored flower in the center. The beautiful La France, the Hermosa, the Mermet, the American Beauty, the Gen. Jacqueminot, or the Sunset Roses. The Scarlet Carnation, the Epiphilum, Truncatum, the Glare of the Garden Dahlia, some new crimson Chrysanthemums—even some velvety crimson Geranium blooms, are, when harmoniously placed in the center of such a basket, or a bouquet, of great effect and beauty. A few Niphotos, Bride, Perle, Marechal Neil, or Papa Gontier, rose buds, or Fuschia blossoms, scattered over the basket makes it extremely elegant and fashionable. The handle should be trimmed with sword Fern, Smilax or Aspargas Plumosa leaves, and I have not yet had a customer that was not pleased with such a display of flowers. In the bouquet the same principle should rule, only it can't be executed with the ease and grace that it can be in a basket. In lady corset bouquets, the Tea Rose, the Carnation, the small flowering Lily, the Chysanthemum, the Lily of the Valley, can be, when with long stems, or on wires, as the fashion now demands, beautifully arranged, in loose form, and do certainly handsomely contrast with the stiff, solid bouquet of former times. Of design work for funerals, such a variety of beautiful and expressive patterns to honor the dead we have at the present time at disposal, that it is merely a matter of good taste and refinement of the florist, to make up such designs to do justice to the ingenuity of the idea of the inventor of the pattern, as well as to the donor of the design. They are, however, manifold from the simple wreath to the beautiful combination of the crown and cross, or gates ajar, or the several designs of the many orders, that a special description of them would be out of place here. Suffice it

to say, that at present in the larger cities, not only *pure* white flowers, but also the lovely Pansy, the Violet, and the delicate tints of the best Tea Roses, the lovely blue Plumbago, the Chrysanthemum, the Paris Daisy, the Lily and the fine silky Milkweed balls are preferably used in making up magnificent fine funeral designs. As it can't be intended with these few words to exhaust the subject in question, I must beg the honored audience to excuse me. If they miss a good many points pertaining to a full and clear presentation of it and perhaps a better informed man, and eloquent writer can do justice to your expectation. Begging your pardon for not being present personally at your meeting. I shall be pleased if these few lines, if considered worthy for communication, will be read by your secretary.

Your obedient member and friend of the noble cause of Horticulture,

PHIL. PFEIFFER.

P. S.—I should have sent a basket with flowers to contribute to your exhibit, but we have on the 4th and 5th to send several large horse-shoe designs to Pilot Grove, Pettis county, which cut us short of all the best roses, left us from two weeks constant work during our several school commencements, but I promise to send something to your next meeting.

Respectfully,

PHIL. PFEIFFER.

REPORT OF JACOB FAITH, MONTEVALLO.

I have given blackberries and plums much attention the past few years. About six acres of blackberries planted and cultivated as before described, has no sign of rust or other disease. Shallow cultivation and often to keep the sprouts down between the rows, and the ground from getting hard. For market and to ship, I grow in open field, and head them low. For home use and for wine I grow in a young orchard, rows running from north to south, but I do not intend to plant largely in orchards, as it takes too much time in cultivating. Potatoes are the only crop I grow in the orchard.

I know some of our members will laugh at the idea of growing berries in the orchard, but their laugh won't hurt me, and the berries bring the money, and when the trees need all the ground I kill the blackberries by cutting them while in bloom. I have grown strawberries and raspberries in orchards, but prefer the blackberry. Avoid deep cultivation, as it will lessen the crop after they are in bearing, but cultivate deep while young. I have about 2000 plum trees, fifteen varieties, and seventy wild Goose Seedlings selected out of 1,000; hardly any two trees alike in wood or leaves. They are a wonder to visitors, the way they are loaded with fruit.

I propagate pums by grafting, like apples, on peach stocks whole roots. They succeed well.

I can grow more plums per acre than corn, and can grow them cheaper also to feed the hogs.

I have said and written much on strawberry and raspberry culture, and have as yet found no better plans than those given.

DISCUSSION.

APPLES.

On the call for "New Fruits" by the President, Mr. Blanchard, of Oregon, had two new apples—The Shenengo Strawberry, which he found to be long in shape, distinct in foliage, good bearer, quite showy and excellent in quality; several present, acquainted with the variety, endorsed Mr. Blanchard's opinion of the apple. The other variety was not named, but was in the hands of the Society for naming. Mr. Murray named the Longfield and York Imperial, and were endorsed as excellent varieties. A new variety found in Howell county and called "Levi," (this, however, is not our own and only Levi, while it is true he is the apple of some one's eye); this variety was reported by Secretary Goodman; a delegate reported the new variety named by the Society last winter as the "Holman," in honor of the worthy Treasurer of the Society, as a good apple in every respect and holding up its reputation. Mr. Evans

reported the Gano as holding its own and a most excellent variety of this kind of fruit. Mr. Goodman stated that there was a goodly number of new varieties being reported, yet he would caution the members to go slow in taking up with new varieties—stick to your old and tried friends. What the Society wanted for Missouri was an apple that was equally as large, good grower and handsome in appearance as the Ben Davis, but as good as the Winesap.

PEARS.

The Keisser was agreed upon as being among the best of new varieties.

RASPBERRIES.

Mr. Patterson, as well as other members, thought Schaffer's Colossal one of the best of new varieties and regarded them as excellent shippers.

STRAWBERRIES.

Mr. Goodman stated the Perfection and Beauty as having been reported to him as most excellent. It had been reported to him that 150 crates had been gathered this season from half an acre.

Mr. Gilbert reported having found a new berry, which was neither a dewberry or blackberry. It grew abundantly in the swamps of Arkansas. He would send sample to the Society.

The Union Martial Band in their bright new uniforms headed by their drum major, Mr. A. H. Greene, put in their appearance upon the streets, and a number of our visitors viewed them from the windows of the court house. They made a fine soldierly appearance, and most excellent music.

Mr. Bell, for the Committe on "Experimental Station," made their report, recommending the appointment of a horticulturist, new fruit department, timber, botanist, entomologist, meterologist and veterinarian, and recommended the appointment of a committee of three to meet with the curators of our State College and urge the adoption of the recommendations of the committee.

The report was adopted.

Mr. Bell then read a very interesting paper on the "Present Outlook of Fruit in the State." It was an excellently prepared paper, and

convinced the Society beyond doubt, that the present out-look was most flattering. He also strongly advocated "young orchards."

The inhuman and outrageous destruction of birds was discussed at length, and the killing of birds was condemned in unmeasured terms.

Mr. Laughlin said, as long as the songsters were doing their part toward destroying the insects, the birds were welcome to what cherries and grapes they could eat. He spoke of the mistakes made by some states in offering rewards for the killing of the owl and hawks. He regarded them as great destroyers of the fruit-grower's enemies. The only bird that should be exterminated he thought was the English Sparrow. It was thought by many that our State should offer a reward for the heads of these pests, similar to that offered by the states of New Jersey and Michigan—two cents per head. When it was announced that the city of Oregon was doing her part in this matter by paying five cents per head for English sparrows, it brought out an enthusiastic applause.

Mayor Bell, of Boonville, proposed to do his part in inducing his city to follow suit.

Messrs. Patterson, Durand, Bell, King, Durkes and others spoke on the subject.

At the request of many of the delegates present Mr. Bell gave an interesting talk on shipping and packing of apples. It was one of the most profitable "chats" of the session. There is but little money in the shipping of early fruits; apples should be barreled; get barrels as nearly air tight as possible. Cold storage cars were the best, and were badly needed in this state. Ventilated boxes or packages should be used for early shipments. Pack carefully; don't use deception by making a good show at each end of package—this is dishonest and you will be caught sooner or later, then, like Iago, "your occupation is gone." For fall and winter shipping use air tight barrels, if possible, standard size—three bushels to the barrel, they are the cheapest, the freight is no more. Handling: Use a basket with handles, put on a small go-cart and go to the tree and pick your fruit, not shake; don't pile in the orchard; haul to your fruit house, a dry place under cover; the best building is of stone or brick; too much light only injures—air tight places the best; lay in the barrel closely, and shake down slightly occasionally as you pack; fill the barrel one to one and one-half inches about the chime, this is all the pressure that is necessary, the former for Winesaps and Romanites, the latter for Ben Davis; heavy lever pressure is a mistake, it only injures and bruises the apple; don't cut holes in the barrels—this injures the fruit by the rapid changes of weather in transportation; whatever you do be honest—mark them honestly—if small say so; if they

are large say so, and let your marks tell exactly what your fruit is.

Mr. Durand gave a highly interesting talk on evaporating of fruit and thought every fruit grower should evaporate. Last year he evaporated 8,000 pounds of apples, culls, etc., and realized \$800 therefrom. He found the Ben Davis the best for this purpose.

PRESENT OUTLOOK OF FRUIT GROWING.

BY C. C. BELL, BOONVILLE, MO.

This subject, assigned to me is so far reaching and of so much importance to every Horticulturist, that perhaps it should have been assigned to some one other than myself, whose time would have permitted a more extended treatise than I can give at this time.

While it may be true that from the standpoint of a wholesale fruit dealer which brings me in close connection with the producer and the trade, not only in this, but other states and countries, I am somewhat in a position to speak of the supply and demand and the requirements of the trade; yet, to do the subject justice, I should like to refer to data and figures, which, if I were in reach of my purchasing and shipping books, kept during the past twelve years, I could give a more satisfactory account.

But, Mr. President, I imagine you will say that I should have come prepared—in this I agree with you,—and I dislike to offer this apology, but I feel you will in a measure pardon me, when I tell you that pressing business of public and other affairs have for the past two months monopolized my time and thought in other channels, especially since receiving the secretary's program, on which I found this subject assigned to me, I have been most of my time absent from home.

However since my arrival here, and meeting with some of the best informed, and most earnest Horticultural workers in this state, and list-

ening to their interesting discussions, my mind has again gotten into the channels and during my stay among you, I shall forget the perplexity of municipal and business affairs.

The present outlook for fruit growing is good. When I say this, I have reference to what we may hope and expect of the future in Missouri.

I am fully aware that some may say that the outlook is any thing but promising, and in support of this they may refer to the past, when high prices were obtained, and the orchard perhaps less affected with insects and disease, yet in face of all this I claim that the present outlook of Fruit Growing in Missouri is more encouraging and promising than ever before.

1st. We are in a position to command attention and trade.

2nd. Our shipping facilities are better and daily increasing.

3rd. We have by nature, advantages unsurpassed by any state in the Union.

4th. We have the experience of the past. To-day we know, "or the well informed Fruit Grower knows," what our great state by nature and soil is best adapted for, and knowing this, we should stride to attain as near as possible, perfection in our respective specialties. My theory in all avocations of life is to find out what our specialty is and whatever that be, let us try to become masters of it; but let us first be sure we are right and then go ahead.

While listening to the able welcome address of the honorable mayor of this beautiful little city, I specially realize the force of his remarks when he calls your attention to the geographical location of Missouri, and the natural advantages as a fruit state. I do not claim for Missouri that we can successfully compete (for all variety of fruit,) with California nor is this necessary; but, I do claim if we select our special varieties of fruit, (which do well here and find ready market,) I say, considering all things, that the present outlook of fruit growing in Missouri is better than ever before, and ahead of any state in the Union (so far as dollars and cents are concerned,) California not excepted.

To satisfy yourself of this, it is only necessary to take facts and figures. To calculate the necessary investments, risks and results.

Apple growing in Missouri is no experiment. It has been by your efforts fully demonstrated that our state ranks far above the average of apple growing states, in this Union, and so far as producing apples for profit, it excels all. It is needless for me to enlarge on this. Such papers as read by Mr. Shultz, of Holt county, on the cultivation of apples, etc., explains it all, and when our good friend, Mr. Laughlin, remarked at the close of said paper, that it was a condensed Fruit Growers' Cate-

chism, he expressed it fully, and leaves nothing for me to add, only my experience from the standpoint of a fruit dealer. However having been reared on a fruit farm, and from early boyhood was taught how to work among fruit, I can more fully comprehend the situation.

The apple, justly called the king of all fruits, its various uses for all mankind at all seasons of the year, and beneficial in all climates, places it in the front rank as the staple of all fruits from a commercial standpoint. And this great leader of all fruits is specially adapted to our state and I assure you if standard commercial varieties are planted, you need not fear of overstocking the markets. But if you go into fruit-growing to make it pay, I would advise you to go into it right, and make a business of it.

1st. You must know what variety suits your soil and locality.

2d. You must know or study the requirements of your markets—quality, attractive appearance, good size and shipping and keeping qualities, are chiefly essential to success. When you have all those combined, then you are right and may go ahead. My advice is to plant large orchards and but few varieties. You need not fear that you will overdo the apple business, all that is necessary is to plant the right varieties. In the past twelve years, I have bought and packed apples in Michigan, New York, Ohio, Indiana, Illinois and Missouri. I have never found a locality where the apple-growing was overdone, but I assure you that my great trouble is to find a locality where I can get the quantity I want. I can further assure you that the larger your orchards the greater your fruit will be in demand and you will obtain better prices. Whenever you have a large orchard of merchantable varieties of apples, you need not bother yourself for a buyer, you will find plenty eager to buy your crop, and at far better prices than is paid for small crops. Again, if you have a large crop and you do not care to have the bother of gathering your apples, the dealer will see to it, he can afford to gather a large crop of standard varieties, while a small crop would only be an annoyance to him. This is no fancy or fiction, but the result of my, and every other extensive dealers' experience. You may, therefore, with all confidence engage extensively in apple-growing. I know of nothing more staple on the market, nor anything which offers better returns.

Again, when you compare the apple-growing sections of this Union, with the vast territory to supply, and the continual growing demands, you must at once see the stability of the apple business. Look at the map of your country—north south, west and even the east. I have shipped apples to markets from the Carolinas to California, to

north and northwest, and even to Europe, and the day is not far distant when the Ben Davis of Missouri will find his way to the markets of Australia and the islands of the Pacific.

Time will not permit me to enter into details, but suffice it to say, that so long as mankind exists, and civilization advances, and the network of railroads penetrate and open out this great land, so long will the demand for apples exist and continue to increase.

In conclusion, let me ask you to calculate and compare the results of fruit-growing of Missouri with the far-famed states of Florida and California. Consider the price of fruit lands and all connected with the business, and you must soon arrive at one conclusion—that apple culture for profit in Missouri stands unexcelled, even by the lemon and orange groves of famous Florida and California.

EDINA, Mo.

We had a killing frost on the morning of the 14th of May. I gave my strawberries a spraying with water while the frost was on, and I believe I saved four-fifths of the berries by so doing. Last year I lost most of my Sharpless by a much lighter frost. It is worth while to remember this experience, as frosts often do a heap of mischief to strawberries.

I will close with the wish for you to have a good time at your meeting, as the names I see in the programme give promise of a very interesting meeting, and a general good time, and such is the wish of your humble servant.

FAMILY LIST OF FRUITS FOR KNOX COUNTY, MO.

Apples—Ben Davis, first and last, Winesap, Rawles, Janet, Jonathan, Early Harvest, Red Astrachan, Duchess, Maiden Blush, Northern Spy.

Pears—Duchess, Keiffer, Bartlett.

Cherry—Early Richmond, English Morello.

Strawberries—Jersey Queen, Crescent, Downing.

Raspberries—Turner, Souhegan, Tyler, Gregg.

Blackberries—Kittitany, Snyder, Taylor.
Currants—White Grape, Fay's Prolific, Red Dutch.
Gooseberries—Downing, Houghton.
Mulberry—Downing.

LIST FOR PROFIT.

Apples—Ben Davis, Jonathan, Maiden Blush.
Pear—Keiffer, Duchess, Flemish Beauty.
Cherry—Early Richmond, Osheim, English Morello.
Strawberry—Crescent, Jersey Queen, Cumberland Triumph.
Raspberry—Souhegan, Gregg, Schaffer.
Blackberry—Snyder, Taylor, W. Triumph.

PETER DAILING.

ST. JOSEPH, JUNE 2nd, 1888.

L. A. Goodman.

DEAR SIR:—I see by the programme of our summer meeting, to be held at Oregon, you have my name on the list for a paper, "How to counteract the effects of the drought," without my consent or knowledge. I suppose we members when called upon by you for a paper on any subject must obey. So I will do the best I can as it is my first trial.

I think the best methods to counteract the effects of the drought are:

First. By cultivation; if in an orchard with no other crop in it, keep the cultivator going once every 10 or 12 days, until last of July, or until rain has fallen. Too late a cultivating is apt to make a late growth, and then not ripen.

Second. If your orchard is sown in clover, cut the clover and leave it all on the ground and use it as a mulch for your trees. This is an easy way to get your mulching, as you raise it right where you need it. And you are not robbing the soil of its strength, but helping to build it up; especially if you will turn your clover under every 2 or 3 years, when it is in seed.

For Strawberries mulching is our main dependence. Black and Raspberries are greatly benefitted by mulching in dry seasons.

Third. A sprinkling wagon is a good way to keep our ground moist where it can be used when needed, but is somewhat expensive, but I think it will pay to use it.

JOHN KERSCHNER.

REPORT OF BATES COUNTY.

To the Officers and Members of the Missouri State Horticultural Society in Semi-Annual Meeting Assembled:

THE BATES COUNTY HORTICULTURAL SOCIETY SENDS GREETING:— Since our report to the annual meeting, there has been no great change in the status of our society. The old officers were re-elected for the current year and some additions have been made to our membership. Our winter meetings were not very well attended, but our first pic-nic meeting, the 3d Saturday in May, showed the usual interest and zeal, so the present outlook for our society is full of hope for increased usefulness in the future. While our society has not accomplished all we desired, still we know it has done some good in our county, by keeping our horticultural interests before the people, but there is a great work yet before us, and the laborers are few; but continued, persistent work, by even a few, will, in a short time work a great change. The work of our state societies and its auxiliaries has been a great help to the horticultural interests of our great state, and the work has only begun and will never be completed, but will go on until Missouri occupies the exalted position which her horticultural possibilities calls upon her to fill. Hoping the state society may hold a pleasant and useful meeting, I will close this scattering report.

HENRY SPEER,
Sec. Bates Co. Horticultural Society.

WHAT FRUITS, OR OTHER HORTICULTURAL PRODUCTS, GIVE THE BEST PROFITS?

JOHN KIRCHGRABER, SPRINGFIELD, MO.

Mr. President and Members Missouri State Horticultural Society:

The above subject has been assigned to me for an answer. It is hardly fair to expect of me to tell my horticultural fellow-workers what particular fruit or branch of horticulture gives the best profits. If I could do so it would not be prudent to do it, for everybody would try to raise the same kind of fruit or follow the same branch of horticulture that would surely follow by an over-production of the particular kind, and thereby create too much competition in the markets, and consequently lessen the profits. But my friends need not be alarmed, for what I am about to tell will be a chance for everybody to make a fair profit out of his labors in horticultural pursuits.

What Fruit or other horticultural product gives the best profits? That depends on several very important conditions.

First and foremost, what markets have we to dispose of our products, so as to give us a good profit, for it would be time and labor wasted if we had no markets to produce more than could be consumed at home. So, if any one intends to engage in a certain branch of horticulture, or, for that matter, in any other business, where will we sell to the best advantage, should be carefully considered.

Second, to be profitably successful, we must have good soil and suitable locations, for without either it would be rather up-hill work for profits.

Third, anyone engaging in horticulture must have a little ready cash and a great deal of enduring nerve, energy and love for the undertaking. To be profitably successful, requires considerable work and often hard work, too, good judgment and forethought.

Now, as to profits in fruit, take the apple, on a whole good results can be had; even very large profits have been derived from apple orchards, and it will so continue as long as we produce first class apples. Mr.

H. Scholten tells me he can make more money out of his Ben Davis, than all other varieties of apples put together, and make it easier, too. While one grower may make a fair profit, another fails to accomplish it.

Pears, as a general orchard crop for profits, I have my doubts about. Myself I had a little experience; twenty-two years ago I planted 700 pear trees, 400 Standards, the rest Dwarfs, but never made the interest on the cost of trees and all work thrown in, and now have hardly any trees left. While one makes a profit in raising apples, others make money from grapes. I made good profits out of peach growing, and what has been done can be done again. One of my neighbors, Mr. Kelley, has a fine prospect for large profits in a ten-acre peach orchard this year. Others again are profitable with plums or cherries, strawberries, raspberries or blackberries. One of my friends in Michigan reports big profits from cranberries. Good results are often and easily obtained from raising vegetables. A gardening friend close by made last year a handsome profit on two acres of sweet potatoes, the Early Golden. This year he planted four acres, mostly of the same kind. Another neighbor has made large profits from raising late cabbage and celery by irrigation; another horticulturist tells me he made money by raising onions. Last, not least, Floriculture claims her share on the list of horticultural pursuits for profits. Many are engaged profitably in raising roses (plants), while others make money by raising cut flowers or bedding plants.

On one kind of fruit big profits may be made, and that is on raising quinces. They are not hard to raise, but seem very much neglected. Reading the market quotations in proper season you will find quinces always scarce and at high figures. So, my horticultural friends, you can see there are plenty of chances for profits, if we would only be content with reasonable profits and strive to produce the very best articles of the various kinds. I don't see why horticulture should not be profitable. It need not be one particular fruit, plant or vegetable; there is money in all of them, but how to get it out that is the question. One often derives large profits even from failures.

POULTRY AND HORTICULTURE.

BY N. J. SHEPHERD, ELDON, MO.

Reckoned as small industries and yet of vast importance, to the owner of a small acreage and within a reasonable distance of a good market, either one or both combined will afford a good living. To a certain extent like all other specialties, at least some experience is necessary to secure the best success. And the advice would be to commence on a small scale and increase as experience is acquired.

The best success in either is only attained by close attention to details and while in exceptional cases, profitable success has been secured, when conducted on a large scale as a rule the best profit in proportion to the amount of capital invested, is in favor of small, closely managed places.

By combining, plenty of work can be had all during the season and there is less risk than when the sole dependence is placed upon one crop. When, with a little care in managing, there can be something to sell at nearly all months during the year, is, of itself quite an item.

Many a farmer owes his success to the fact that his wife raised poultry and to a considerable extent paid the running expenses of the family by selling eggs and poultry. On what we term a small scale there are no more risks with small fruits or poultry than with any crop or stock on the farm unless we fail to give proper attention. The principle reason why so many farmers do not make a success with either is that they expect them to look out for themselves. There is no question but that if given the same care and attention that is given other crops and other stock, they can be made fully as profitable. Giving special attention to any farm crop or any kind of stock will as a general rule pay a profit above the average, while in every line of farming men fail to realize even a fair per cent of profit and the principal reason is they fail to give the care and attention necessary. The purchasing of a small number of chickens and turning them loose on the farm or investing in a number of small fruit plants of different varieties and setting them out and then letting them look out for themselves ought not to be construed

as keeping poultry or raising small fruits. And yet a large class who pronounce these products as unprofitable manage them after this plan.

Even if they are not raised especially for market there ought to be on every farm a full supply of all kinds of fruit and a sufficient number of poultry to furnish a full supply of eggs and fowls for family use, and they should receive careful attention, so that good results can be secured. Better never than to neglect, and yet this can hardly be afforded. They ought to be considered as necessities and as such can be raised on the farm cheaper and of a better quality, all things considered, than they can be purchased.

THURSDAY, JUNÉ 7, 8 P. M.

EVENING SESSION

was opened by the committee on ‘Fruit Show’ making the following report, which was adopted:

In view of the fact that the State of Missouri has at this time of the year a good prospect for a good crop of good apples; and that from some place or places within the state, there is almost a certainty that a good show of our fruit can be made this fall, and of the further fact that Mr. Johnson, Secretary of the coming Exposition at St. Louis, has offered the very best part of their great building as a place in which to exhibit the horticultural products of Missouri, your committee would recommend :

That we make at the Exposition at St. Louis, this fall, the best possible show of the horticultural and floral products of the State.

That the State Society invite the county and local societies to assist and co-operate with the State Society in preparing and making the exhibit.

That county courts be requested to appropriate the money necessary to defray part or all of the expenses of exhibiting the products of their respective counties.

That all citizens who may have it in their power to assist in this work be requested so to do, each in his own way, and as he or she may have opportunity.

That arrangements be made soon for the gathering of the early fruits, and for cold storage to receive them.

That the proper means be placed in the hands of working committees to do their work well.

That railroad companies and express companies be requested to give free transportation to all the products for this exhibit, and to all persons traveling on this business.

And, that all of our newspapers and our immigration societies, be earnestly requested to help to bring this matter early, often, and prominently before the people as one of the best possible means of advertising the state.

W. R. LAUGHLIN.

J. A. DURKES.

A. AMBROSE.

HARD PROBLEMS IN HORTICULTURE.

BY T. W. GAUNT, MARYVILLE, MO.

Mr. President, Ladies and Gentlemen:

The task of solving hard problems in horticulture has been assigned to me.

We would say that as far as we are concerned we have been able to overcome all the apparent difficulties that have been presented, but we have had much to do to induce others to think and practice what we have advised in the many years that is past and gone. We had the hardihood thirty-three years ago to face a howling wilderness, the intent of which was to reduce to a fact that the soil of Northwest Mis-

souri was capable of producing the finest quality of fruit in abundance. Back in the early days of 1855 Northwest Missouri was but thinly settled, scarcely any fruit trees were planted, and consequently no fruit could be obtained. We first began the nursery business in Andrew County. At a leisurable time we took a trip through the several counties throughout Northwest Missouri. After a careful examination of the soil we concluded that the Platte purchase would in time make the finest fruit garden on earth. We were fully convinced that the Creator had prepared Northwest Missouri for the production of fruit if the people could be convinced of the fact. We had a fearful task before us. Nearly all the settlers said it was too cold to raise fruit in Northwest Missouri, and that the soil would not raise anything but corn. This was the hog and hominy period. Often the remark was made to us, young man you will fail. We modestly remarked that we had been to school in our youthful days, but had utterly failed to learn the meaning of the word. There is no need of a failure in the grand old state of Missouri. We are happy to realize that our labor has not been in vain, and that our expectations of thirty-three years ago have been met.

By the use of a little common sense, all the seeming hard problems are easily solved. The second chapter of Genesis contains a grand description of the first fruit garden on earth, planted by an infinite Father's hand, with consummate skill and perfection in every department. The garden was called Eden or Paradise, meaning a place of bliss. We sometimes roll back old time and imagine that we are looking over that lovely paradisical home of our first parents. The infinite Father planted every tree that was pleasant to the sight, and every tree that was good for food. We doubt not but that there was a rich profusion of flowers also. The infinite mind saw that an abundance of fruit was highly necessary in the economy of man's every day wants. Fruit is an indispensable article of diet. Fathers and mothers, let your children have all the good, ripe fruit they can eat, they will be healthier and stronger by its use. There is scarcely a man or a woman here but what can look back to the happy days of childhood and think with pleasure and delight of the happy days when you ate with satisfaction the delicious fruit of your favorite tree in the old orchard.

What can be more satisfactory than an orchard of well-selected varieties of apples from the earliest to ripen, to the longest keepers. Thus providing the family with fine, ripe fruit all the year round.

To this may be added a few varieties of pears, plums and cherries, all the small fruits may be had, they grow successfully here, there should be a rich profusion of flowers also. Home surrounded with finest of

fruit and flowers must shed a refining influence on the inmates of that home. Its refining influence makes better husbands and wives, and better sons and daughters. He is a wise man who has provided for his household an orchard that will yield its fruit for all seasons of the year. We can never expect to raise the fine tropical fruits, but we are happy to realize that we are well supplied with a fine variety of fruits suited to our climate and the wants of the people. We have had enough for our families and many thousands of bushels to spare. We think that the state horticultural society is doing a grand and noble work.

They are at labor in the morning of the great day of horticultural splendor. There is a great future for the grand old state. Future generations will realize more profit than has been realized in the past. The profits of an orchard are considerable more than if the ground was planted to wheat or corn. We think that first-class apples will never rate lower than 25 or 30 cents per bushel. Nothing but the finest and best of fruit should be marketed and that will command the highest price. All inferior fruit should be fed to stock, and it is worth 25 cents per bushel to feed. Stock of all kinds are very fond of apples and are as beneficial to them as to the human family, at the rate of one ration per day. It is the best to plant all deciduous trees late in the fall. The trees should not be taken out of the nursery until the wood is well ripened. There is no danger of freezing out or damaging during the winter if properly planted. Fine surface soil should be used in filling about the fibrous roots, using plenty of water to settle the soil. The surrounding earth will soon absorb the superabundant moisture, and your trees will, in a few days, be as firm in their new situation as old established trees. For a standard orchard the trees should not be planted any closer than 30 to 33 feet, an orchard in full bearing should have entire possession of the ground and should receive good culture. Timothy or Blue grass should never be allowed to take possession of an orchard as it saps the ground too much, and thus the vitality of the trees are soon impaired. The fatal error of allowing an orchard to over bear every alternate year induces premature old age and decay. By good culture and judicious pruning out the small branches when the tree shows an excess of fruit of what it ought to bear, many years of profitable bearing may be added to the life of an orchard, and the so-called off year will then become a profitable one. Every man who plants an orchard or fruit garden is a public benefactor.

We have the satisfaction of knowing that we are following up the example of Him who planted the first fruit garden for the benefit of His creature man. The duty of the man was to dress and keep it. We of

to-day are pleased to eat the fruits of our orchards, but many of us neither dress or keep our orchards in good condition. There should be a good belt of trees round our orchards, and where ground is scarce, one row of Norway Spruce would be a great benefit. Our neighbors' orchards that are surrounded with natural trees produce larger and finer fruit than we do on the prairie without shelter, simply because the sap flows free and uninterrupted in sheltered locations, which is a good consideration. Trees that are planted on the prairie are shaken by every wind, which retards the circulation of the sap and has a tendency to retard the development of fruit, hence the great necessity of a shelter belt of timber of some sort.

The trees that are well protected from the severity of wind storms, live longer, grow faster and bear finer fruit, but without a shelter much of the finest fruit is carried away with every severe wind that sweeps through the unsheltered trees. The time is near, and already at hand when we shall have to spray our fruit trees with some kind of poisonous preparation, when the fruit is quite small, to stop the ravages of the apple worm that is destroying so much of our finest fruit. Prof. S. A. Forbes, State Entomologist, of Illinois, says: In general, the results of once or twice spraying with paris green, in early spring, before the young apples had dropped upon their stems, resulted in a saving of about seventy-five per cent. of the apples exposed to injury by the Codlin moth.

We find that to be successful in raising pears, the dwarf trees should be planted a little deeper than standard trees, on account of the roots which are Anger's Quince, and are lateral in their growth; they should receive a heavy mulching every spring ; this will preserve an even temperature in the ground and prevent a rapid evaporation of the moisture, which is a great essential in developing and maturing the fruit, and preserving the vitality of the tree. We find that rather moist soil is preferable for pears. We have quite a number of Louise Bonne, Duchess and other sorts that are in regular bearing on the quince, planted on damp soil and not the least blighted, that are in a thrifty condition. The situation for an apple orchard should be dry or made so by a thorough underground drainage. The apple will not live so well, or thrive so well, on a soil constantly saturated with stagnant moisture. Cherries require a dry soil. The Morello family of cherries succeeds finely on dry ground, when worked on the Mahaleb stock they come to early bearing and succeed best of all others in Northwest Missouri. We find that the Heart and Bigarreau families of cherries do not succeed here; they make

a rapid growth the summer which renders them too tender to stand the severity of our winters, and are unworthy of culture here in Northwest Missouri.

We have never succeeded in raising European plums on account of the curculio, however when we all fall into line with our vaporizing engines, to fight the Codlin moth and Apple worm, we can clean out the Curculio also, and get all the fine plums we want. Let us wage relentless war until all the enemies of our orchards are utterly destroyed.

All the small fruits succeed well in Northwest Missouri. They should receive a good mulching in the spring, which will yield a bountiful supply of the finest fruits.

Evergreens should be handled with great care, as the sap is of a resinous nature and by exposing the roots to the sun and wind the vitality is soon impaired, as the sap hardens and it is impossible for it to be restored to its normal condition after once becoming dry. Every year thousands of evergreens die; the result of careless handling. During a drought we find that the vitality of newly planted evergreens can be preserved by showering the whole tree after sundown with water, that has been warmed by the sun during the day.

Much good may be done by the thoroughly practical nurseryman to advance the interests of the Horticulturist by the selection of suitable stocks or roots on which to propagate the great variety of fruits. For instance, we will take the great family of apples; the stocks or roots are raised from seed and are large enough to graft at one year old, each seedling produces a new variety of fruit, and it must necessarily follow that some of the new sorts are very hard in texture of wood and some are coarse and soft. There are many grades of texture in a lot of one hundred thousand seedling apple stocks, many of which should be rejected as utterly worthless. Nothing but the finest and best roots should be grafted. Then will Nurserymen greatly advance the interest of Horticulturists, in that of having longer lived trees and better bearers. To adapt or affinitize the stock with fast or slow growing varieties requires much scientific classification of the stocks. There should be a perfect adaptation of scion to the stock, then we shall have a satisfactory result. Our attention was called to this subject thirty-three years ago. In Andrew county I observed that some apple trees were either budded or grafted about three feet from the ground. I also noticed that some of the bodies were very small, with quite an enlargement above the junction of the scion with the stock, and vice versa, showing the great dissimilarity between the scion and stock. During the severe storms of 1855, many of the trees were broken off at the junction of the cion and stock,

leaving nothing but a worthless stump, hence all must agree that root grafted apple trees are much better than either top grafted or collar budded apple trees, which are so liable to break off during a storm.

After the Choral Union had rendered a selection in their best style, the report of B. T. Galloway, of the Department of Agriculture, at Washington, on the "Black Rot of the Grape," was read by L. Chubbuck, of St. Louis.

BLACK ROT OF THE GRAPE AND ITS TREATMENT.

BY B. T. GALLOWAY.

Ladies and Gentlemen:

It needs but little argument to convince you that the disease of the vine commonly known as the black-rot is the worst enemy with which you have to contend. For many years this insidious foe has ravaged your vineyards, devastated your crops and blasted your hopes. Thousands of once flourishing vines have become worthless through its action and in many cases whole districts have been forced to abandon grape growing entirely on account of its baleful effects.

I wish to inform you in the beginning that as yet little is known concerning a sure remedy for this malady. The fact is that we are at present just beginning to receive the first rays of light upon the subject, and my object in preparing this paper is not to offer you a cure for the disease, but to give you a few simple facts in regard to the cause of the malady, and what has been accomplished in the way of combating it. Before proceeding further, however, I desire to impress firmly upon your minds the fact that--the black-rot is caused by a plant, a living, growing being which never originates spontaneously as many suppose, but owes its existence, on the contrary, to a parent which lived before it.

No doubt many of you are aware that this plant belongs to a group whose members are known as parasitic fungi; these attack the higher plants, break down their tissues and use the material obtained in this process, in building up their own bodies. The parasite in question possesses characters, by which it is distinguished from similar species, as those possessed by the grape upon which it feeds. These facts will enable you to understand that you are really fighting something tangible, when you undertake combating the black-rot fungus, and they also reveal to you the importance of knowing thoroughly the life history of these minute plants before making any attempt to prevent their ravages.

EXTERNAL AND BOTANICAL CHARACTERS OF THE FUNGUS.

The parasite attacks the young branches, the leaves, and their supporting stalks, the fruit, and occasionally the stems which support the latter. Upon the leaves the fungus produces reddish brown irregularly shaped spots which frequently coalesce or run together and form large blotches. In Missouri the spots usually appear about the last week in May or the first week in June, which is at least ten or fifteen days before the berries reveal the presence of the fungus. The young branches are attacked about the same time that the leaves begin to show the effects of the malady; but here the spots are black or dark brown and are usually elongated in the direction of the *striae* of the bark. The effects, produced by the fungus on the fruit, are so well known that only a passing notice is necessary. Generally there first appears a brownish spot upon the berry, this rapidly increases in size and soon becomes black at the same time the fruit begins to shrivel and soon dries up entirely. Close examination of the berries at this stage of the disease reveals numerous black postules scattered irregularly over the surface. Similar postules are also found on the diseased leaves and branches, but in the latter instance they are more distinct and are usually arranged in more or less definite circles.

The external characters above described are due to the development of the body of the parasite—which is known as mycelium—within the tissues of the leaves, branches and fruit. The mycelium consists of very slender, much branched, colorless, septata filaments; these traverse the tissues both between and through the cells and under their action the latter lose their shape and their contents turn brown (Viala and Ravaz, "Le Black Rot," p. 18). In the process of growth the mycelium gives rise to numerous rounded bodies which are at first colorless

but later become dark brown or black. These bodies are found just beneath the cuticle and as they continue to enlarge they rupture the latter and appear in the form of black postules already described. Microscopic examination reveals the fact that the postules are really little sacs or conceptacles, and further investigation shows that they are filled with oval or oblong colorless bodies which are borne upon very slender transparent stalks; the latter arising from the enveloping walls of the conceptacle. A figure is represented by a highly magnified, vertical section of one of the conceptacles above described. The oval bodies seen escaping are the spores (called stylospores) which serve to propagate the fungus rapidly during the growing season. At *b* is shown the walls of the sac (pycnidium) while below are shown several of the filaments which compose the mycelium.

Of the actual size of the parts figured, some idea may be obtained when we find the entire conceptacle rarely exceeds one two hundredth of an inch in diameter. In addition to the conceptacles described there are others formed in a similar manner which contain bodies more slender and more minute than the spores referred to, these are known as spermagonia, while their contents are termed spermatia. What may be the office of the spermatia has never satisfactorily made out.

The stylospores are produced in immense numbers, and under favorable conditions of moisture and heat they germinate readily by sending out slender tubes which easily penetrate the cuticle of the leaves or fruit, and once within the tissues they develop into the mycelium which produces the effects already described. During the growing season, the air in the vicinity of vineyards where the disease prevails, or has prevailed, is filled with the spores or germs of the disease, only waiting to be brought into contact with some part of the vine to begin their work of destruction. Millions of these spores live over winter in the old berries and other parts of the plant, and just as soon as the young leaves appear, they are subjected to the attack of these minute bodies. The fungus passes the winter in the old berries in another form, which is really the mature stage of the parasite. In this case, the conceptacles which hitherto bore the bodies, figured as 1 and 2, are filled with club-shaped, colorless sacs or asci, each of which usually contains eight reproductive bodies, termed sporidia. The sporidia also germinate readily in the spring, but, as already shown, the fungus has the power of propagating itself in other ways, so that the sporidia are not absolutely essential to the development of the parasite, at least for one year. It is very probable that the sporidia are designed to preserve the life of the fungus dur-

ing periods which would prove fatal to the less protected stylospores; at least, all the evidence at hand would lead us to believe that such is the case. For a long time the summer stage of the fungus was known as *Phoma uricola*, but after the discovery of the form last described this name was dropped, and the name for the mature form, which is *Physalospora Bidwellii*, was adopted.

TREATMENT.

From what has been said, it will be understood that the treatment of this malady must be preventive. The germs of the disease are omnipresent and are ready to attack the leaves and fruit whenever the conditions are favorable. During a period of drought there is usually less rot simply because moisture is necessary for the germination of the spores. The latter are present, however, no matter how dry the season may be, and at the very first approach of moisture they germinate and, as a result, the whole grape crop, which gave every promise of maturing in perfect condition, soon becomes a worthless, shriveled mass.

Experience has taught us that little benefit is to be derived from a destructive treatment, such as burning the diseased branches, plowing under the rotten berries, or collecting and burning the latter, no matter how thoroughly such a course is followed, there are always germs enough left to insure the propagation of the fungus. So far, the only methods which have proved successful or given promise of success in combatting the enemy, are the following :

1st. Selection of varieties not subject to the rot.

2d. Bagging.

3d. The application to the vine of such substances as will destroy the germs or prevent them from gaining access to the tissues of the leaves or fruit.

Of the first and second methods little need be said. Every grape-grower knows that certain varieties are less subject than others to the attacks of the parasite, and a judicious selection of resistant vines will to a certain extent result in a mitigation of the evil. Our object in bagging the fruit is to exclude the germs. From what has been said of the life history of the fungus, it will be readily understood that the bags must be applied early, in fact, the greatest success resulting from the use of bags has been obtained when they were applied soon after the flowers were well open.

We come now to the third method, that of applying to the vines a substance which will destroy the germs or prevent them from gaining access to the interior of the fruit. Many chemicals have been recommended and used for this purpose, but so far none have given very satisfactory results. The only substance which gives promise of value in this direction is sulphate of copper or blue stone. A very small quantity of this substance is sufficient to prevent the spores of the black-rot fungus from germinating, and if by some means the leaves and the fruit are covered with a thin film of the substance, it is very probable that the spores will be destroyed before they are able to send their germ-tubes into the tissues. Both in this country and Europe, during the past two years, extensive experiments have been carried on with copper compounds in the treatment of black-rot and other diseases of the vine. While these experiments have not clearly demonstrated the value of copper sulphate as a preventive of black-rot, there is sufficient evidence at hand to warrant us in saying that the use of this substance should be continued at least until more positive results are obtained.

The sulphate of copper may be applied to the vines in various ways. Many have used a simple solution made by dissolving one pound of sulphate of copper in twenty-five gallons of water. This preparation, however, has not given very satisfactory results, and frequently the foliage has been injured by it. So far, the following compounds of copper and lime have proved most satisfactory, their effects being far more lasting than those obtained by the simple solution.

LIQUIDS.

1st. Copper mixture of Gironde, Bordeaux mixture, original formula: "Dissolve 16 pound of sulphate of copper in 22 gallons of water; in another vessel slake 30 pounds of lime in six gallons of water; when the latter mixture has cooled it is slowly poured into the copper solution, care being taken to mix the fluids thoroughly by constant stirring. It is well to have this compound prepared some days before it is required for use. It should be well stirred before applying.

MODIFIED FORMULA.

Sulphate of copper.....	4 lbs.
Lime.....	4 lbs.
Water.....	22 gals.

The copper is dissolved in 16 gallons of water, while the lime is slaked in 6 gallons. When cool the solutions are mixed as described above. This has proved equally as valuable as the original formula.

2d. Eau Celeste, Audouynau process: Dissolve 1 pound of sulphate of copper in 2 gallons of hot water; when completely dissolved and the water has cooled, add 1½ pints of commercial ammonia (strength 22° Baume¹); when ready to use dilute to 22 gallons. The concentrated liquid should be kept in some wooden, earthen, or glass vessel.

The effects obtained by this preparation have in most cases been beneficial, yet when carelessly used, the foliage is occasionally injured by it. To obviate this the following preparation is recommended:

EAU CELESTE, MODIFIED FORMULA.

Sulphate of copper.....	2 lbs.
Carbonate of soda.....	2½ lbs.
Ammonia (22° Baume ¹).....	1½ pts.
Water.....	22 gals.

Dissolve the sulphate of copper in 2 gallons of hot water, in another vessel dissolve the carbonate of soda in a similar manner; mix the two solutions, and when all chemical reaction has ceased, add the ammonia; then dilute to 22 gallons.

POWDERS.

3d. Sulphatine, the Esteve process: Mix two pounds of anhydrous sulphate of copper with 20 pounds of flowers of sulphur and 2 pounds of air slacked lime. The proportions may be varied.

4th. David's powder: Dissolve 4 pounds of sulphate of copper in the least possible amount of hot water and slake 16 pounds of lime with the smallest quantity of water required. When the copper solution and slaked lime are completely cooled, mix them thoroughly together; let the compound dry in the sun, crush and sift."

The foregoing preparations adhere very firmly to all parts of the vine with which they come in contact. The lime firmly fixes the copper so that practically none of the latter substance is given up, excepting when there is moisture present. Under the action of rain and dew the copper is slowly dissolved, so that it is present on the leaves and fruit at the very time the germs of the fungus are most active. Enough has been said to show that early treatment is absolutely necessary in combating the malady under consideration. Just as soon, therefore, as the leaves are formed treatment must begin. For the first application, eau

celeste with the addition of carbonate of soda will doubtless prove more economical and less likely to injure the foliage than the other preparations.

A second application of one of the solutions should be made about the time the vines are in bloom, followed by a third when the fruit is about one-third grown. For general use the liquids have given the most satisfactory results, and another advantage in their favor is that they are cheaper, all things considered, than the powders.

METHODS OF APPLYING THE LIQUIDS.

As a rule, where no benefit has resulted from the use of the copper solutions, the cause, in many cases, may be traced to the manner in which the applications were made. Many have used brooms and wisps of straw for this purpose, but such methods have proved wasteful and it is next to impossible to reach all parts of the vine with such clumsy affairs. It will be cheaper and better in the end to purchase a specially constructed pump, and one of the best instruments designed for spraying vines is the "Improved Vermorel Machine." This consists of a reservoir for holding the liquid, together with a pump and spraying nozzle. When in use the reservoir is strapped to the back, while the pump is worked with the right hand, and the spraying nozzle is directed over the foliage with the left.

With this machine one man can thoroughly spray from 2 to 4 acres of vines per day, and, owing to the even distribution of the liquids, a much less quantity is required than when brooms are used. The cost of the instrument, including all necessary apparatus, is about \$12 00. The Vermorel machine is made in France, and for this reason it is somewhat difficult to obtain it in this country. A machine very similar to the foregoing has lately been put on the market by Mr. Adam Weaber, of Vineland, New Jersey.

UNITED STATES DEPARTMENT OF AGRICULTURE,
DIVISION OF POMOLOGY.

DIRECTIONS FOR SELECTING, PREPARING AND SENDING SPECIMENS OF
FRUITS.

It is essential that all specimens of fruits sent to this department to be examined by the pomologist, and intended to represent certain varieties, should be characteristic in all respects and should fairly exemplify their peculiarities. To this end the following instructions should be followed:

1st. Select such as are of average size, typical in shape and color, and not too soft to carry safely.

2d. Cut a small branch showing bearing wood, and if possible with one or more fruits and characteristic leaves attached, and when possible another showing the mature one year old wood. It is of the utmost importance, not only to the pomologist in identifying and comparing varieties, but also to the artist in making illustrations, that the branches and leaves should accompany the fruit.

3d. Each fruit, whether attached to a branch or not, should be separately wrapped in several folds of tissue paper; and then packed in moss, cotton, or very soft papers, to fill the space between the fruit and the box which contains them.

4th. In sending such as are liable to shrivel, or such as have fresh leaves attached, the packing should be dampened. The box should be wrapped in several folds of strong paper, and securely tied over all with twine. There is no objection to sealing a package sent under a government frank.

Great care should be used to send nothing by mail that may decay and injure the contents of the mail bags.

There is no objection to receiving overgrown or curiously marked specimens of fruits which are of special interest.

Boxes made especially for carrying pomological specimens by mail, and franks for pasting on the outside of such packages, will be sent to anyone applying for the same. When a frank of this department is used, no postage is required, and such packages may be mailed at any post office within the United States.

Large boxes or barrels may be sent by express and the charges guaranteed, which will be paid here.

Very respectfully,

H. E. VANDEMAN,
Pomologist.

NORMAN J. COLMAN,
Commissioner.

HOW THE LOCAL PRESS MAY ASSIST THE HORTICUL-TURIST.

J. M. HASNESS, MOUND CITY.

Mr. President and Ladies and Gentlemen of the State Horticultural Society:

In looking over the length of the program arranged for this session, and knowing that although the spirit might be willing, the flesh is weak and in need of rest and refreshments, which we learn the good people of the Orchard City have prepared for our entertainment, I hope you will consider the few suggestions I may offer, not in the light of an exhaustive paper, but simply as a few hints thrown out. The subject given me by your committee on program, is: "How the Local Press May Assist the Horticulturist." The time has come in the history of horticulture in our state, as well as in many others, when it is no longer a small thing and to be despised, but on the contrary, it is one of the great sources of our wealth, and stands along side of agriculture and stock-raising. Thirty years ago the great Missouri Valley and the country west, then undeveloped, depended upon the states east of us for fruit. Prices were in consequence high, and fruit was a luxury afforded by few. To-day the state of Missouri not only produces her own fruit, but largely in excess of the home demand, and much of her fruit goes back to the same territory that formerly supplied us. No better fruit

country is known to-day than our own state, and yet we are but in our infancy in this industry. Thousands upon thousands of acres of land that are now comparatively worthless, because they are not suitable for raising grain, could be made to pay five times as much per acre in orchards as the most productive acre planted to corn. The same worthless land, so considered, could be made to produce an hundred dollars per acre planted in small fruits. But, says some one, where is your market? You will have an overproduction. Such expressions were heard twenty-five years ago when our fathers began setting out a few trees, and yet sale for all the fruit, and at remunerative prices, has always been found. The local press can greatly assist our horticulturists, and in doing so greatly benefit the community in which they are published, and add to the wealth of the country, by encouraging, in every possible manner, the development of these lands; for, unlike most other beings, the horticulturist is an unselfish mortal, and knowing that his profession is the noblest of them all he welcomes, with open arms, all new aspirants in this field. Also the local press can assist horticulture by encouraging the planting of orchards; the establishment of canning and vinegar factories; by giving practical information as to what and how to plant; when and how to cultivate—for all horticulturists are not experienced, and he who disregards the experience of others is sure to make a sad failure; by encouraging and assisting, in every county, the organization of horticultural societies. Perhaps there is no one thing that will so stimulate and encourage the intelligent and successful raising of fruits, as the horticultural society. It is in them that experiences are interchanged, and new thoughts and plans conceived that will help to lighten work and bring about better results. The novice at the business of raising fruit is enabled to shun the pitfalls that the pioneer fruit growers fell into, by profiting on their experience. The local press can not do the interest of fruit growing in our state a greater service than by urging and insisting on the formation of these societies.

It would seem that with the many destructive insects with which the horticulturist has to contend; the extreme cold of winter and the hot, dry summer, that his lot was a hard enough one, and that he would certainly be exempt from the sharks that prey upon all other classes and professions. But no! The fruit tree peddler, in the garb of a great benefactor, with his highly colored plates representing his new varieties, (sold only by one nursery, you know,) puts in his annual appearance, and induces you to buy his new Russian apple at 50 to 75 cents a tree; or some new pear or plum, or cherry, whose only recommendation is its

high price. The local press can greatly assist the horticulturist by advising them to buy only known and tried sorts. Not that we would deny all new varieties, but then the probabilities are that when you subscribe for them through some traveling agent, representing a nursery up in Iowa, or over in Illinois, or some other state, you will get some common, and very common, varieties, instead of the new varieties with the high sounding names you subscribed for. And then, again, if they should prove true to name, as represented, the testing of new varieties is expensive, and should be left to our experiment stations, and every state should have one, for, should they prove worthless, your money and time are both thrown away.

The local press may assist the horticulturist by publishing nothing but what comes from responsible sources. We are acquainted with a person that killed a number of fine plum trees by following a recipe he had read in a paper for destroying curculio by the use of coal oil. He poured it on the trees and found it a sure thing, for both curculio and trees died. The local press may assist the horticulturists by publishing the proceedings of their meetings and the papers and discussions had thereat. We are glad to note that within the last few years the press of our state has awakened to the fact that horticulture is worthy of some of their space, and much more attention than formerly is given it. We might speak of the healthfulness of fruit, and especially of small fruits, and point out the great good the press might accomplish by urging their more general cultivation, at least for family use, if not for profit, but we fear we would tire your already over-taxed patience.

THE FOLLOWING LETTERS WERE READ:

LEES SUMMIT, MO., May 22, 1888.

L. A. Goodman, Westport, Mo.:

DEAR SIR:—I forward you by mail to-day, a box of diseased plums in various stages of development. We had a frost at the time they were in bloom, and I attribute it to that. Am I right? This variety is the Quaker Plum, the fruit of which when perfect, is almost as round as a marble and of excellent quality. I think that about five per cent. of this variety is affected. Other varieties also have them, but they are

comparatively few. With the plums, I enclose a bunch of deformed foliage taken from my Wild Goose trees. There are quite a number of these, but confined almost wholly to the Wild Goose variety. What, in your opinion, is the cause these diseases?

Yours truly,

M. BUTTERFIELD.

KIRKWOOD, Mo., May 28, 1888.

Mr. Goodman:

The box containing the "Bladder plums" was duly received. I had often seen them before, but as I was not fully posted concerning the disease, I submitted them to Prof. Trelease, who says: "It is the work of *Taphrina (or Exoascus) pruni*, a widely distributed species on both sides of the ocean. I do not think that late frost had anything to do with the appearance of the disease. The common belief appears to be that the fungus is perennial in the young wood and it has been recommended that the diseased fruit be destroyed and the trees severely pruned back. The velvety coating of the diseased fruit is composed of the spore sacs of the fungus."

Your correspondent also mentions a bunch of deformed foliage from Wild Goose plum, which was not in the box, so I suppose it was occasioned by some disease with which you were acquainted.

I have my papers nearly ready for coming meeting of the Horticultural society, but circumstances seem to combine to make it inconvenient for me to be absent from home next week, so that I cannot yet decide what I shall do about going. If I can overcome the difficulties in the way, I will accept your very kind invitation and come to Kansas City, on Saturday, by the day train, and go to Oregon with Mrs. Goodman, if agreeable to her. Do not expect me however, as at present it seems very doubtful about my being able to leave.

Your last report is full of good things, although I do not think you "expanded" half as much as the place deserved, over the beauties and promise of the Olden Fruit Farms. I suppose it was due to a proprietor's modesty.

If I conclude not to go to Oregon, I will send the papers on by the last of the week.

Yours truly,
MARY E. MURTFELDT.

UNITED STATES DEPARTMENT OF AGRICULTURE, DIVISION OF POMOLOGY.

WASHINGTON, D. C., June 1st, 1888.

L. A. Goodman, Secretary Missouri Horticultural Society:

MY DEAR SIR:—I want to express to your society my sincere desire to assist the fruit growers of your state in any way that they may suggest, provided it is within my power. I hope you may have a good meeting next week at Oregon.

Fraternally yours,
H. E. VANDEMAN, Pomologist.

BROOKFIELD, Mo., May 26th, 1888.

L. A. Goodman, Esq., Secretary State Horticultural Society:

DEAR SIR:—We are instructed to invite the State Horticultural Society to hold its next meeting at this place. We feel assured that the members of that society would not be disappointed at the cordial and hearty welcome and entertainment our citizens gladly tender. Hoping for a favorable consideration of our request, we are

Very respectfully,

GEORGE W. MARTIN,
Secretary.

A. P. CROSBY,
Pres't Linn Co., Hor. So.

Invitation to meet at Kirkwood by C. W. Murtfeldt.
Also to meet at Poplar Bluff by G. W. Register.

POPLAR BLUFF, Mo., May 17, 1888.

Mr. L. A. Goodman:

DEAR SIR :—Your blank for fruit report I fill out as far as I can well.

All kinds of fruits except raspberries and strawberries are as promising as I ever saw.

Sorry the state meeting is so far away. It seems that southeast Missouri might have a meeting of the State Society. I think Poplar Bluff, Butler County, a very suitable place, and I am sure our people would appreciate it.

Fruit-growing is in its infancy here, but I see no reason why it should not be made a grand success.

Respectfully,

GEO. W. REGISTER.

BROOKFIELD, Mo., June 22, 1888.

L. A. Goodman, Secretary State Horticultural Society:

DEAR SIR :—Your answer in regard to our invitation for the winter meeting of the State Horticultural Society to meet in Brookfield, was received, and we regret we were too late for that meeting. We now take pleasure in renewing the invitation for next summer, and hope you will kindly assist in us in securing the meeting at that time, and feel assured it will stimulate fruit growers of this county to greater interest in fruit culture, as well as advancing the cause of horticulture throughout the state.

We have a large hall which will accommodate five hundred, and ample preparations will be made to accommodate all that may come. Hoping to hear that the society will favor us with their summer meeting, I am,

Respectfully yours,

A. P. CROSBY,
Cha'm. Linn Co. Fruit Growers' Ass'n.

Cora Fry recited Sheridan's Ride, and in this effort she excelled all her former efforts.

The Choral Union then treated the large audience to the "happiest hit," of the session by singing "Oh, John!" the rendition of this piece was so admirably done that "a repeat" was necessary.

The committee consisting of Messrs. Murtfeldt, Gilbert and Patterson submitted the following :

RESOLUTIONS.

Your committee offer the following as the embodiment of our appreciations :

RESOLVED, That our sincere and warmest thanks are due and hereby tendered to the ladies and gentlemen of the Holt County Horticultural Society and of the citizens of Oregon generally, for the warm-hearted and fraternal welcome extended to the Missouri State Horticultural Society at their semi-annual meeting and for their tasteful efforts in adorning the hall and grounds with paintings, fruits and flowers.

RESOLVED, That equal thanks are due to the ladies and gentlemen who entertained the visiting members with appropriate music and recitations.

That our grateful acknowledgments are hereby tendered to the Missouri Pacific, the K. C., St. Joe & C. B., the Kansas City, Springfield & Memphis, and branches, the C. & A., the Chicago, Santa Fe and California railroads for excursion rates.

That in the eloquent and practical address of welcome by His Honor, the Mayor, we were at once made to feel at home, and in association with men and women who had more than ordinary appreciation of "The Art Doth Mend Nature," which all horticulturists are studying to practice.

That our very grateful thanks be tendered the cornet band of the city for the very interesting music at different times.

That we sincerely thank the Union Drum Corps for their display drill and enlivening martial music.

That we will hold in grateful remembrance all the efforts made by the local committee on entertainments to make us feel at home while in Oregon.

The resolutions were unanimously adopted.

Miss Amanda Evans, the pleasing daughter of the efficient president, recited in a most feeling and pleasing manner "The Lord's Prayer and Variations," when the Chair announced the semi-annual meeting

of the State Horticultural Society was adjourned to meet at Nevada, Vernon County December 5, 6, 7, 1888.

Dr. Goslin then took charge of the meeting, and the visiting Delegates, Clergy, Press, Choral Union and others proceeded in procession to the "Banquet Hall," where that which was good for the inner-man was in waiting. At the

OPERA HOUSE

The climax of a great meeting was reached. The Hall was displayed in its most gorgeous aspect. It was neat, brilliantly lighted and tastefully arranged. Along the walls were an array of seats for the guests not accommodated at the first table. Down the body of the Hall were two rows of tables freighted with rare luxuries for the festal gathering. Strawberries, whose fair cheeks had just blushed in the vernal sun, invited our honored guests to partake. Ice cream served with lavish hands, awaited to refresh the inner-man. Cakes, in huge proportions, sat upon their silver pinnacles, ready to fuse their substance with other forms and satisfy the most varied tastes of the multitude. Flowers—those rare beautifiers—mingled their fragrance and beauty with the hum of merry voices, to animate the flow of events, and embellish the scene. In the distance the sound of martial music; while at the front entrance, the Silver Cornet Band, sent peal after peal of harmony to float upon the evening air and die out in the distant hills; and within the hall, Philbrick's orchestra swelled the souls of all with choicest music. The assembled guests were moved to admiration, as the daughters of Oregon moved with easy grace among the happy throng, dispensing luxuries without discrimination. They were arrayed in colors that you could hear coming, while on their cheeks stood that rosy hue—the index of health and merriment. The reception was worthy of a metropolitan town and filled our visitors with profound gratitude. The scene was one that will long live in memory and will enroll Oregon among the royal hostesses of the state. No toasts were responded to, for all were too full for utterance.—*Holt County Press.*

THIRTY-FIRST ANNUAL MEETING

OF THE

MISSOURI STATE HORTICULTURAL SOCIETY,

HELD AT NEVADA, MO., DEC. 5, 6, 7, 1888.

UPON INVITATION OF THE VERNON COUNTY HORTICULTURAL SOCIETY.

Pursuant to the call and programme, the members of the Society met in the Opera House and begun the arrangements of the fruits for the meeting. There were along each side of the house two tables four feet wide and forty-two feet long, filled with the most beautiful specimens of apples ever shown in western Missouri. About one thousand plates of fruit were shown by the State Society, and about two hundred and fifty plates by private members for premiums. Around the hall were hung twenty-six diplomas and certificates of award, taken by the Society at the World's Fair and St. Louis Fairs, and on the table were four silver medals and one gold medal taken at The Mississippi Valley Horticultural Society, the American Pomological Society and the World's Fair. One taken at St. Louis, Mo., one at Rochester, N. Y., one at Grand Rapids, Mich., and one at New Orleans, La.

The room was finely decorated with festooning of evergreen moss hung from the stage and all about the room.

The meeting was an enthusiastic one, and the community was awake to the importance of this meeting as well as were the members of the

Society from all parts of the State. There were over five hundred present at many of the meetings, and it was one of the most enthusiastic and profitable meetings ever held by the Society.

DECEMBER 5TH, 7.30 P. M.

Society met and was called to order by the President, J. C. Evans, and the session was opened with prayer by Rev. Joseph King, of Nevada.

The Nevada Glee Club was present and furnished much delightful music for the evening. The first was a quartette, which enlivened the evening's work. The members are Messrs. Deck and Boyd Graves, Mrs. M. F. Hill, Miss Sarah and Miss Maud Graves.

President Evans presented Hon. E. E. Kimball, who delivered the following address of welcome, in a most pleasing manner, amidst laughter and applause.

MR. KIMBALL'S ADDRESS.

Mr. President and Members of the State Horticultural Society:

I have been charged with the pleasant and agreeable duty of extending to this honorable body, a cordial welcome to our little city. We feel greatly honored that you have come here, on the invitation of our local society, to hold your thirty-first annual meeting. I may say, without seeming to boast, that Nevada has gained something of a reputation for its thrift, enterprise and push. But I take greater satisfaction in the feeling I have, that she adds to these qualities the crowning one of open-hearted hospitality. I need not remind you that you are in the midst of a people industrious, intelligent and progressive; a people in full sympathy with every earnest effort made to widen the field of human knowledge; a people anxious to encourage, to the fullest extent, the spirit of scientific inquiry, which so characterizes the age in which we live.

I know nothing of the earlier history of your society. I cannot even conjecture what questions were discussed at your first meeting;

but I hazard nothing in saying that while thirty years have been marching along with trim precision into the realms of the past, patient observation and investigation have made those, who are before me, familiar with many of nature's wonderful processes that were not dreamed of when your society was first formed. Yet, I doubt not, you come to this meeting with more questions, and with a greater anxiety for information than ever before. As the living forest trees send their thousands of rootlets into the crevices of the rocks, as well as into the yielding soil, for the moisture and nutriment they must have, while their thousands of leaves silently draw in the vital gases from the gentlest breezes that move them, so you, who are gathered within these walls are quietly sending out the tendrils of memory and storing the mind with food for thought, to the end that something may here be added to the general fund of knowledge already garnered, and come a little nearer to the solution of some of those Horticultural mysteries that now confront you.

I understand that Horticulture means something more to-day than the ordinary definition of the dictionary. It is not merely the cultivating of gardens. Your inquiries and discussions will relate to the growing of fruits and flowers, and vegetables, and trees for ornament and use, and the arrangement of them so as to produce pleasing landscape effects. Horticulture is both an art and a science. The observation and experience of untold generations, from the day when the leaves of the fig tree were fashioned into raiment, until these late times when the product of an unsightly worm furnishes us with robes of gorgeous beauty, has perfected us in the former; while an acquaintance with the laws of natural science has advanced us in the latter. The aim of Horticulture is to furnish man with pleasant surroundings and a palatable and nutritious class of food. The great mass of our sustenance comes from the vegetable kingdom. The sap, bark, leaf, flower and fruit, each yields its portion. Man joins hands with the Maker, not only in the production of vegetables, fruits, flowers and trees, but in their improvement in flavor, fragrance, size and beauty.

The horticulturist must know something of the natural sciences. From botany he learns that the earth produces more than a hundred thousand species of plants, the most of them in some way serviceable to man. Knowing something of the general laws, of their classification and structure you are able to judge with a considerable degree of certainty as to their properties, and may by observation and study be enabled to add to the number of plants now classed as useful.

Chemistry will remind you that common honesty pays ; that what you take from the soil must be returned or something will suffer.

This science may enable you to discover fertilizers, but can, beyond these things, do little more for you. You may observe and encourage its mysterious processes in vegetable life, but give it a "magazine of pure elements and it cannot furnish you a single grain of starch, nor a crystal of sugar, nor anything that can be a substitute for them. The plants are the only chemists that can take up these inorganic materials and in the wonderful laboratory of their living tissues mould them into forms to support animal life."

From entomology you may learn something of insect life and habits that may relieve you from their depredations. So great is the injury done to crops in this country every year by these destroyers, that it has been said that if a foreign nation should, in the same time, injure us one twentieth part as much, our army and navy would be speedily called into requisition to demand and obtain satisfaction. As it is, we are well nigh helpless, our only resource being to ask the zoologist to turn loose the insectivorous birds—those flying guards—the only natural protectors from this foe, and to insist upon the passage of laws that will prevent killing of them in wanton sport.

He who earnestly and ambitiously addresses himself to the study of Horticulture, will find an almost illimitable field before him. He must know some thing of all these sciences I have mentioned. He must look with microscopic power into the secret laboratory of vegetable life. He will not pass a strange leaf without noticing its veining. The beetle with its drowsy hum and the crawling worm in his path will have an attraction for him. He ought to possess, to some extent, the qualities of mind which enabled Newton to see in the prismatic colors of a trembling soap-bubble, evidences of a great law.

There is a very noticeable disposition on the part of young men and women of this day to avoid agricultural pursuits. They are pushing toward the cities with trade, mechanical pursuits, the learned professions, salaried positions, insignificant clerkships—into anything that will keep them off the farm. The moderate education which most of them receive, creates a desire for employments that will enable them to mix brain with muscle, and this condition of affairs must continue until a higher and better education reveals that there is a science in farming ; that this industry ought to awaken thought and develop the strongest powers of the mind. It must be shown that true learning is not hidden within the covers of a printed book, but that "we

shall find no spot on earth where there is not some alcove of nature's library with volumes enough to employ us for life." In the words of the poet we must

"Find tongues in trees, books in running brooks,
Sermons in stones and good in everything."

Then we will not care so much to live within the shadow of a great library, nor within sight of a church spire. If thought always dignifies labor, then the farm should be made as fine a field of intellectual employment as any of the learned professions. When this pursuit is undertaken with this understanding, its drudgery will disappear, and its rewards to those heartily engaged in it, will be certain and abundant.

I pause here a moment to consider what I have been saying, and what warrant I have for appearing so wise in these matters. I think I detect signs of amazement written on many of your countenances. It may not be generally known that I am a member of the American Horticultural Society, in good standing, yet if you will get the proceedings of their last meeting you will find it so written. I have a Pullman car acquaintance with most of its officers and many of its members. At one time I felt quite near to them. I was in California when they held their last meeting—two hundred miles away. When I joined the society the secretary was kind enough to give me a very valuable receipt—for the membership fee. I say valuable, for with it I am always able to show that I have contributed something to the cause of horticulture.

For fear that I may have created a false impression, by some of these carefully coined phrases you have just heard, I must unmask myself by admitting that as a practical Horticulturist I am a miserable failure. Years ago I planted some fruit trees. The most of them are living and making a rather tame effort to reward me. I am far from being satisfied, but must confess to a lingering suspicion that the average boy in my neighborhood has less reason for complaint. For several years I planted garden vegetables of all sorts, and a posey bed now and then. I have hoed until I could hoe no more, with my blistered hands. I have watered the parched earth, at early morn and in the dewey eve, until I have grown stoop shouldered and mishapen. I have got out of the bed in the dead, still hours of night and chased a neighboring cow three times around the house and twice through the blackberry patch, and afterwards tried to live a week like a christian, to atone for the wickedness of the occasion. I have grown short-sighted watching for the first indication of my choice and tender plants coming forth. I have seen them

break timidly from the dark, cold ground into the glad, free air of the best country the sun shines upon, to live a few happy days and then go down under an unseasonable frost; or, before an army of invading cut-worms. I have never been able to get my cabbages to head, while the yield from my rank and thrifty potato vine has rarely been enough for the next years planting.

These astounding results were at last explained to me by an old neighbor who passes by frequently. He came up and rested his arms on the fence once while I was busily engaged in digging a hole big enough for a cistern, in my frantic effort to find a potato as large as a bird's-egg, and remarked:

‘Your potatoes don't seem to turn out well.’

I was warm and my reply indicated that a very small sum would easily purchase the entire crop.

“Wall,” said my old friend, “you lawyers think you know it all, and I haven't felt like meddling, but I have noticed that you always set your cabbage plants and planted your potatoes in the wrong time of the moon.”

That settled the business for me. Up to that hour I was resolved to persevere as an amateur horticulturist. I had reconciled myself to the idea that I must learn botany, entomology, zoology, meteorology and chemistry, but now it was plainly intimated that I must add astronomy to the list, and lay out cold nights watching the fickle moon, in her phases, through a costly telescope. This was the last straw that broke the camel's back. Then and there I ceased to be a practical horticulturist. Since that day my garden spot has been the wonder of the neighborhood for the luxuriance and variety of its rag-weed, crab-grass and dog-fennel. I must admit that I have lost pretty much all interest in your art, but if the moon-theory happens to form the theme of some of your discussions, I should like the best in the world to be present.

And now I once more bid you a sincere welcome to our little city. Remember, you are our honored guests, and all of our doors are open unto you. You must visit our asylum, where you will see the craziest people in the world. You will be shown our wonderful artesian well, and have the pleasure of trying its life-giving waters. I trust that during your stay here you will see so many things to admire, meet so many pleasant gentlemen and beautiful ladies, and be treated so royally in every way, that you will ever afterwards realize how great is your misfortune in not being one of us.

At the conclusion of Mr. Kimball's remarks President Evans arose and said :

Ladies and Gentlemen:

On behalf of the Missouri State Horticultural Society it becomes my pleasant duty, as its presiding officer, to thank you and Mr. Kimball and, through you, the people of Nevada and Vernon County, and also the members of the Vernon County Horticultural Society for this most cordial welcome.

We see in this audience familiar faces of those who have come here from long distances, some of them hundreds of miles. Perhaps some of you who are not horticulturists cannot understand why they have come so far. Some may think they have an ax to grind. Not that. They come, as Mr. Kimball has said, 'to learn,' and to teach each other—to exchange ideas and profit thereby. They come to tell each other how to plant and when; the difference in the soils; the difference of varieties, and how to plant and cultivate them.

We come here to accept an invitation tendered by the Vernon County Horticultural Society, believing this would be the best field to work in.

It is not worth while for me to tell you that you have the nicest and best city in southwest Missouri. You know that. I need not tell you that Vernon is one of the best counties in Missouri, you all know that.

I want to say to the people of Nevada and surrounding country that we want them to attend our meetings. Their presence encourages us. It makes us feel good to have you here."

When President Evans concluded his remarks, Boyd Graves appeared with a solo, assisted by Miss Maud Graves at the piano.

Miss May Hall next recited "Enoch Arden," in a most pleasing manner. Her effort was received with great *applausé*.

Deck Graves and Miss Trix Blanton followed with a charming duet.

Mrs. S. M. Livermore, of Carthage, who was on the program for an essay entit'led "Love and Flowers," was not present, but her paper was read by Z. T. Russell.

THE LOVE OF FLOWERS.

MRS. S. M. LIVERMORE, CARTHAGE.

If you would find the sacred paradise of purity and piety, where virtue, wisdom and equity are assembled—look at the beautiful flowers of the garden. The science of spiritual life is brought home to our consciousness. Instead of the groveling of the outward senses we have the illumined scroll of the spirit held down to our view.

The subject of this paper, "The Love of Flowers," brings a busy train of remembrances, each vieing for an expression of the passing beauties realized in experiences, tableted in the memories of the past. Being in lack of poetical expression always belonging to flowers, I shall aim to give you something of a practical nature, resulting from observation. Use determines all qualities, whether good or evil. The love and refining influence of flowers determines their use. The value of all things is in their use.

Now, as fond as we are to hear ourselves talk, and however grievous it might be to our vanity to yield up to compliments of the hour, I would gladly make the sacrifice if I could, by any power I possess, transfer you all to floral scenes more beautiful and instructive than I could possibly elaborate to you in a volume, to roam through the glass structures in which the plants of the tropics find a climate. No doubt many of you have had this privilege; so much the more will you appreciate what I will say in reference to one of the finest works of art in flora culture.

The place now referred to is known as Shaw's Garden, of St. Louis. Henry Shaw, the former owner of this garden, is a man of great wealth, owning a large landed estate joining the city. He bequeathed to the city of St. Louis the world-wide renowned Botanical Garden, to the cultivation of which he has given the greater part of his life, traveling through foreign countries, gathering from all lands and from every clime, to add to his green-houses and hot-houses, and to the architectural and horticultural designs, of which St. Louis was the happy recipient.

Courtesy and refinement characterized this man of flowers. Always complimentary to all visitors who came and went, without money and without price.

The limits of this paper will not permit a description of the grounds, even if I were romantic enough to do so. I leave to your own imagination to fill in, and I, in my feeble effort, fail to describe. I would be glad to picture to your minds, if capable, the livelier perceptions of the beautiful, and the expressions of purpose and usefulness of form and sentiment, which belong to these scenes of floral beauty.

This beautiful retreat lay within a convenient distance of our home, and many years have intervened since the writer of this paper found it one of the greatest privileges, when our city was under martial law, and storms of discord and unrest filled every heart and mind with dreams of desolation and war—that we could withdraw to that “tempered sunshine, and celestial hues” of the beautiful flowers to soothe our cares.

As I entered the broad and beautiful avenues to this prototype of something more than earthly, “Favored of Heaven, in that blest moment, all the past forgotton, there is nothing I see which so nearly blends earth and Heaven, as the scenes in part, so feebly described.

There is no place where the outside world is so completely shut out as in floral scenes like this.

I will quote on this subject some remarks in point by A. J. Downing :

“All beauty is an outward expression of inward good, and so closely are the beautiful and true allied, that we shall find, if we become sincere lovers of grace, the harmony, and the loveliness with which rural homes and rural life are capable of being invested, that we are silently opening our hearts to an influence which is higher and deeper than the mere symbol ; and that if we thus worship in the true spirit, we shall attain a nearer view of the Great Master, whose words, in all his material universe, are written in lines of beauty.

“And how much happiness, how much pure pleasure, that strengthens and invigorates our best and holiest affections, is experienced, in bestowing upon our homes something of grace and loveliness, in making the place dearest to our hearts a sunny spot ; where the social sympathies take shelter securely under the shadowy eaves, or grow and entwine trustfully with the tall trees or wreathed vines that cluster around, as if striving to shut out whatever of bitterness or strife may be found in the open highways of the world.

“What an unfailing barrier against vice, immorality and bad habits, are those tastes which lead us to embellish a home ; to which, at all times

and in all places, we turn with delight, as being the object and the scene of our fondest cares, labors and enjoyments; whose humble roof, whose shady porch, whose verdant lawn and smiling flowers, all breathe forth to us, in true, earnest tones, a domestic feeling that at once purifies the heart and binds us more closely to our fellow-being."

I once heard an itinerant preacher say, that as he rode through his district, when weary and worn, seeking some place to rest, he always choose those where he saw flowers in the yard and in the window. They were an index to what he found in the details of the household.

The absence of flowers is not always to be attributed to the want of appreciation and love for such luxuries. Necessities and rush for greater needs often drive from the little home these refining influences.

And now, from this sketch, you will see that the love of flowers is not necessarily confined to the mothers, daughters and sisters of the family. The love of flowers and true refinement go together.

Show me a man who is fond of flowers, one who is ready to make some little sacrifice that his wife may indulge her fancy, and I will show you an enchanted home; I will show you a kind, loving, tender father, whose sympathies are ever open to the wants of those entrusted to his care. I will show you cultured sons as well as daughters, and almost without an exception, a harmonious family.

W. R. Laughlin, of Elm Grove, next told "The Story of the Leaves," in a highly interesting manner.

THE STORY OF THE LEAVES.

BY W. R. LAUGHLIN, ELM GROVE, MO.

The highest authority on the definition of English words says, "Every part of a plant that is not stem is leaf." Most comprehensive definition. It is written "All flesh is grass," it is true because all animal

life is based on the world's vegetable life. All grass is mostly leaves. Nearly all of the value of all hay and all fodder is in its leaves. Silk is made from leaves. A very large share of the ornamenting on our globe is done with leaves.

A leaf is a small, frail thing. It is not heavy like lead and the gold; it is not hard like the stones or the diamond, neither is it strong like the silk, the flax, or the cotton. As it works, its operations have not the blinding glare of the lightning, or the noise of the thunder, nor do they shake the solid ground as does the earthquake. If you touch a leaf it will not burn you, if it falls upon the grass-hopper it will not crush even him.

The leaves as they hang from their stems are moved by the faintest breath; they are carried away by a gust of wind, or torn to fragments by the gale. They lay themselves down upon the earth to decay, and are leaves no more. We speak of them as "only leaves" and yet no force of nature nor any agent employed has played so important a part in bettering the earth as have these same leaves.

If there had been no leaves there could have been no animal or human life. If the leaves had not done their share, there would have been no soil, nor trees, no beds of coal.

Without a soil, without animal life of man or beast, lacking timber and coal, no petroleum, no natural gas, nor any of all the manufactures or the arts that depend for their existence on these—no world.

Aye, the rocks would have been in their places, the metals would have slept where they were created, the battles of the fires and the oceans might have gone right on, the air would have been a mass of deadly gases rushing among itself, moved by the chargings of the seas, by the violent changes of forms wrought by the earthquakes, and by the columns of steam sent from below by the heats that melted the rocks, and made the waters and the very metals into vapor.

But to what purpose; for what end would this mass of dead matter have been collected, held together and sent on its course among the planets and the stars. We, at least, can conceive of no design that would have been carried out, no object that could have been served, no progress that would have been helped.

The powers whose heavings from below have built the mountain ranges, and whose struggle beneath have shaken the globe a thousand times and prepared the beds for the oceans, have done their part.

In the battles between the seas, in the shocks of the mighty waves the rushing of the torrents, the falling showers, and the gently gathering dews, the water has done its part. But the little leaf that came without

a sound, whose weight was only more than that of a feather, that gathering from the air, carried on its work of formation and transformation as it hung for its brief hour, and at last dropped its insects' load of gas condensed to the earth below, has done, is doing a later, finer work than any of these.

It has trembled when the earthquake shook the solid ground, the fire of the heavens has blazed, and the thunders have roared above it; forests have been buried under contending oceans, or have gone heavenward from consuming fires; orders have ceased to be, and species have given place that others might come. The animals and the insects have devoured them, or they have moldered to dust; but the leaf has not failed from the face of the earth, for each year has brought its sure and ever new creation.

We, for our present purposes, do not need to be troubled with speculations as to the nebular theory, nor at all to go back behind where science has made facts plain; and knowledge positive. Let us look at the leaves in the light of ages untold, but without conjecture and without imaginings.

The earth was without form, and void. Gravity and motion gave it shape. Among, and on top of this material, the fires and waters contended for the mastery. Over all was an atmosphere, wherein no man could have lived for one moment.

This was to be prepared to receive the man. The fires were restrained, the earthquakes were moderated, and the seas found their places. From above, enough that had floated there for periods, led by the increasing force of gravity had settled down so that the sunlight began to reach the naked earth; but the air was still heavily laden, and carbonic acid gas was everywhere. No need to wonder what the first vegetation was—we cannot know.

After awhile vegetation of a giant size, rude in shape, coarse of texture, with leaves of simple form and of unvaried pale, dull green, was extracting the gas from the air and preparing the material for the coal beds.

Such trees and plants would chill to death in one of our summer days, or perish in one of our nights for want of poisonous gas upon which to thrive. But they did their allotted task, and the coal was laid away till the man should come, and the air was made ready for him to breathe; and as vegetation grew higher in its character, a better soil was laid on the surface that out of it might grow the things he needed. Animals preceded him and fed upon every green thing, so that when he

came he found food of vegetables and of flesh ; but the agent that brought all this was the little leaf.

And what is this leaf, this very little thing that hath wrought such wonders and done so much to give character to a planet ?

THE STARTING POINT

In all our vegetation is the seed. An invisible atom of pollen finds its right place in a flower and the results a seed, perhaps within an apple or an orange, perhaps shut in a pod as a bean or a locust, or a husk like wheat or corn. But be it this or that, the seed has its coatings, its cells, starch, gluten, diastase, coloring matter and a germ. It has also its definite character. From one kind of seeds men make strychnine, from others bread, while from still others are developed many useful articles. The same seed may give us food, or it can be changed into the much abused alcohol.

The seed of a Lima bean is much larger than the seed of the great redwood of California ; but the bean produces a plant which at its heaviest only weighs a few ounces, while the smaller seed grows into a tree that will load a hundred wagons.

Men do not plant the seed of jimpson expecting to raise peaches, nor expect to produce figs from thistles.

The germ within the seed has its chemical character, but neither eye nor instrument, nor chemical process can tell us what it will bring forth. If we know not what it is, we must bury it in the soil and wait to see.

THE NEXT STEP

in the life of vegetation is the bud, and this may be developed from the bark of many plants as well as from the seed. Cut off at the stump almost any of the trees or shrubs ; it looks hopeless, as though it could not live again ; but out of its own substance the snag that appears so dead organizes a bud, and from out its bark or from a root under the soil pushes a new growth. This December day on twigs that cannot be numbered, all over our own Missouri are the buds for another year's leaves and fruits and flowers. The embryo is folded carefully at the center, the scales are wrapped around it in nature's perfect style of placing, and the water is shut out by the wax that cements its parts together. The cold will not kill them nor the wind tear them to pieces ; and when the spring time has breathed upon them, their scales will loosen, action will begin, the germ will expand, and the new born leaves, lovely

for their very tenderness, will soon be at the work of their annual generation that must be done in a few months. Tons of leaves will come in a few days on the acres where all the long winter only the buds were waiting. Each leaf will have its coatings, cells, glands, its thousands, or tens of thousands of mouths to each square inch, hairs to regulate its breathing in and breathing out, and the protoplasm and the chlorophyl will be moving in currents streaming all through its structure. When the sun shines the leaves will be taking in carbonic acid gas. When night is upon our side of the world they will be taking in oxygen, and all the time busy working these over into material for tree or plant. The roots will search through the soil below for their tribute and send it through channels that cannot be seen, up to meet the product of the leaves. All summer long this most wonderful of all buildings goes ceaselessly on.

Chemistry is lost among these operations. Mechanics cannot explain the comings and goings of these substances; of the ultimate of the how or the why, we simply know nothing. We call it life, but what is life? The immediate results are of first importance to us, and we do know that the fields bring forth the grains and the fruits, and the vegetables we need, and the flowers we so much admire; the forests are reared; the air is made fit to breathe, and all over our landscapes is spread a clothing of beauty; and beauty is scarcely less necessary to the cultivated, refined human being than is his food.

In the presence of the operations of nature, what need of "Robinson Crusoe" or "Sinbad the Sailor;" "Gulliver" or "Munchausen," the "Arabian Nights" or the last French novel. Here are stories infinitely more wonderful than any of them; not silly, sickly fancies, but facts to be had for the reading; facts the searching out of which brings its own high reward; beauties, the common property of the millionaire and of the man that sees them from the poorhouse; knowledge to be gained for the furtherance of knowledge was made a part of man's nature.

Perhaps we cannot just now see a dollar, or food, or clothing in knowledge that appears to be entirely abstract; but allow me to believe that all knowledge of nature gained, adds to a fund from which only good will come. For the enjoyment it brings, and with confidence in such result, let us "get wisdom." We constantly speak of the

PURE FRESH AIR.

Do we ever think how impure it is, or how foul it would become if there was nothing to regulate its condition?

Stand on the hills across either rivers from Pittsburg, and see the stifling, poisoned smoke rising from the multitude of the great chimneys of the furnaces, foundries, factories and shops, and from the dwellings of that large city. Go among the acres of ovens where coal is burned into coke, and see and smell the gases, the sulphur, and the ammonia driven into the atmosphere in such quantities that the light of day is at times obscured over whole regions. Go, see and smell at the places where the sewers of a city are emptied. Among the fairest, freshest scenes out in the country your nose will warn you when you come near a heap of decaying vegetation, or a putrefying animal. Think that such gases, poisons and stenches are rising into the atmosphere from every acre of city or country all over the world. Sum up all these and then imagine something as to what a fearful load of deadly poison and of nauseous filth goes every day into what we call our pure fresh air. Ah, if all this went on and there were no leaves, this globe would soon be again in such condition that neither human beings nor any animal could exist on its surface.

The force of gravity of course brings down very much that is mechanically forced upward by the heated air and the ascending smoke; but the gases rise here and there and everywhere and refuse to fall upon the soil, but float in the air and are only reduced by the leaves.

The little leaf, whether nestling close to the ground as part of some small plant, or swinging high in the air from the topmost twig of some tall tree, is standing guard between the soil and the clouds, and all is well.

As time passes, will there not be a purer air, an elevated human race, a higher order of everything?

What will the leaf of the future be and what will be its work?

I have seen the fierce prairie fires of Illinois, Iowa and Kansas, lick up the heavy coat of grass, destroying in a moment the growth of a season; nay, not altogether destroying, for part was sent into the air and part was left as the annual tribute to the soil, gathered in and laid down by the leaves of the wild grasses.

In many places in California, Oregon and Washington, have I been among the great fir forests, where the trees stood from three hundred, to four hundred feet above me; where, for thousands of acres, the sun had never seen the ground for centuries. As bushes they had commenced making their deposits, and now as great trees they were dropping each year tons of leaves upon every acre of it. A foot below the last fallen leaves was the leaf mold formed perhaps before Columbus found the unknown continent.

Coming as from out of space itself, from the very bosom of the lone, the wild blue sea, as we have neared the mouth of some of the great rivers, we have met the changed waters freighted with the material brought from above, out of which to build additions to the world; and as we sailed over the deposits where some day will be people and nations, I knew that the little leaf had its full peculiar share in all that building.

What a country will be, some day, where now the Amazon is bringing from the slopes of the Andes the products of the rocks and from the vastest forests and prairies of the world its immense load of decayed and decaying vegetation, mixing them on the road and distributing them over a wide spread area of sea bottom. If it were not for the work the leaves are doing all over half a continent, that deposit would be a desert of the future.

Well might Missouri be called the State of many trees and of most beautiful foliage. Look carefully next season at the leaves of our wild woods. It is easy to tell, by their leaves, any of the oaks from any of the elms, to know any ash from any maple, or the locusts from the lindens. Our native trees are nearly all seedlings. But among these seedlings of any one kind, there is a literally endless varying. See the very plain differences between the size, form and color of the foliage of individuals among the elms and the oaks.

Among the thousands of millions of the human race, no two are so alike but they can be told apart. The fact is wonderful; but consider how very much greater is the number of the leaves on the trees in our woods, and yet on any of our forest trees no two full grown leaves can be found but yourself or your neighbor with the best mechanical eye and the finest eye for color can tell directly which is which of the two. If you doubt this, try it next summer.

Consider the number of different species and varieties. Remember the endless varying of individuals, the countless number of the trees and of the leaves on each tree. Compare the leaves that grow on the same tree, and you will have some sense of the infinite variety.

The most skilled expert in colors, who handles the finest goods in any establishment in New York City, would find himself at sea among the endless shades of the greens of the oak trees in a Missouri grove, and when the myriad variations of the autumn colors have come, he would be far worse lost than before.

Add to these, our own trees, the evergreens that are already proved for our State, and any and every day in the year may be made to show much of the beauty of the leaves; and not alone for beauty, either, for

the evergreens will hold their leaves all winter better than a wall between us and the winds.

Fellow horticulturists, among the trees of Missouri is our life work—here it is our privilege to dwell. The leaves of Missouri foreshadow the destiny of the central, last formed, best formed of the States of the nation that leads on to the road to the destiny of the world.

THE CYCLONE.

Where is the field the cyclone has chosen to show its power and to revel in its wanton mad destruction? It is not among the mountains of Arkansas covered all over with the grand old forests. It is scarcely, rarely, if ever, among the wooded hills of Missouri. It is only where the trees are few. Dakota and Minnesota are almost bare. Naked Nebraska, and out on the plains, the great American Uncertainty, where naught is sure but steals, and nothing thrives like fraud; where the simoon withers the leaves on the stray, discouraged trees and dwarfs the very grass, leaving the brutes to perish, and bringing to human beings hunger and financial wreck.

THE BLIZZARD.

From its birthplace, even beyond the Artic circle, from a region bare of all save a few stunted willows, the blizzard rushes unhindered over States where the grain fields and the prairie grass are all of growth in summer, and where in winter the face of nature is hid from view by a mantle of desolation.

But between us in Holt county and the monster of the northwest, lies a hundred miles of the hills and timber on either side of the Missouri river, and since white men have been there no blizzard has reached us without losing very much of its fierceness.

The scope of hills and trees broadens south and east, beyond our county—so near an outpost—and the fearful power roars among the countless twigs of unnumbered trees, passing on, weakened at every mile, losing the strength of its dreadful rush, losing the strong grip of its Artic cold, slowing into a gale, then to a wind that dies away where the clear, free water runs unfrozen among the vast forests, the deep restful wildwoods of Arkansas.

The leaves have gathered from the air, and the roots have sent from the soil below. They worked together to build the trees, and behold, the trees are able to conquer the fiercest demon of the continent.

But it is not so even fifty miles west of us. Between there and the Rocky mountains the blizzard has its way, often far down into Texas. The effect is caused, in small part, of course, by the mechanical resistance; but very much more by something else. Whether by the electrical qualities of the leaves, twigs, branches, and trunks of the trees, or whether the control is by means of some agent as yet unknown, the fact is at least a general one. There are the almost treeless prairies, and there are the cyclone, the blizzard and the tornado. Here are the forests, and a very important degree of exemption from the fury of all these storms.

DROUGHT HISTORY.

Again, to use our own county of Holt as an illustration, or as a sample:

Lying between two rivers, we are surrounded on all four sides, excepting a part of the north, by many miles of uneven country covered with timber. Squarely between us and the hot southwest winds is the peninsula, timbered and uneven, that includes Doniphan and a part of Brown counties in Kansas.

When the great drouth of 1860 compelled the settlers of Kansas to call for aid there was no hunger in Holt, and when the greatest of drouths lasted for the years 1885, '86 and '87, growing worse each year, there was enough to keep the animals from suffering, and no human being needed to lack for plenty to eat and that of the best quality. We claim much of this partial exemption from drouth is due to our peculiar soil, but by night and by day the leaves were standing their guard around and over us, shading the soil, moistening the air, and hindering the winds.

Look at the map of our state. All along our eastern border the Mississippi. The great Missouri running more than 600 miles of its course inside our bounds, and emptying into it the Nodaway, the Platte, Grand River, Chariton, the Osage, itself a large river, and the Gasconade scarcely less than the Osage; and into these many smaller rivers, and into them all a host of creeks. The streams are well placed all over Missouri, and on either side of every stream an array of hills well nigh covered with timber.

Ask history if the settlers of Missouri ever sought or needed aid. Nay, for the trees were here, and their leaves have covered us as with a shield.

Shout for joy ye people that dwell in the shade and the shelter of the forests. Abide in this land, the land of peace and plenty—the

beautiful land. Let no cunningly devised fables draw you nor your children away from the land of the hill and the tree. Go not forth to the lands that are bare; for behold the grasshopper is there, and the simoon doth waste, and whether thou be in solitude upon thy ranch, or whether thou be in the city, the cyclone or the tornado may destroy both thee and thy neighbor in the twinkling of an eye.

When thou shalt behold the illustrated pamphlet of the Flea-bite Town Company be not bewildered. When thine ear shall hear of railroad lands at half price, on long time at small per cent be thou like the deaf adder that cannot be charmed, though the charmer be never so wise. Still abide. Then shalt thou have something to give to the ragged refugee when he driveth to your door with his tottering team and his hungry children.

THE STORY OF THE LEAVES

Is one of hope; nay, of assurance. Progress, real progress, is the order of the universe, at least it is so upon our planet.

Compare the few rude fossils and imprints of the vegetation of that time, left among the lower coal measures with the forms that are growing to-day upon the earth. Ask the rocks and they will tell you that as the periods have taken their places in the past eternity, the gradations of animal life have risen higher at every change. The monsters are going out, and animals better suited for man's purposes are being improved by him to meet new requirements. Call all this development or evolution if you will. I choose to believe in a continued, continual, progressive creation.

The breech-loading rifle is fast finishing up the work of relieving the world of its dangerous and useless animals. Our buffaloes have gone. Our grizzly bear and the tiger of the jungles of India have ceased to be a terror to the man of nerve, who has in his hand the best modern gun. The wild elephant, the lion and the rhinoceros are nearing the close of their allotted stage; and men will learn in due time to exterminate the monsters and the cumberers of the seas. These must all give way.

The insects, more afflictive than all the larger animals, will finally pass under the control of man, aided by the microscope and the discoveries made, and to be made in that boundless field of entomologic science whereon now the daylight but dawns.

Long ago the feudal system went away forever. A few months ago, in Brazil, the hand of a woman with a pen mightier than a sword, de-

stroyed almost the last vestige of chattel slavery that was left among the civilized nations of the earth; and already the nations are troubled by the signs of the coming of the time when the few shall cease to rob the many.

Whatever of wrong, of suffering, even of despair may yet exist, there is reason in hope; yes, in confidence.

Tell me not that monopolies and syndicates, combinations and trusts, special legislation and the power of money, and the wickedness of individuals, can overwhelm society and enslaven the people for all time.

The bigot's hate and the fanatic's persecutions endure, but the days of racks and the fagots are past. Do not fear that the bigot and the fanatic will finally and forever enchain the humane race; that the oppressor will not cease forever, or that the anarchist of any and all shades, degrees or pretexts, shall destroy till the last state of the earth shall be worse than the first.

Dry lands may sink again under the seas. The place where an ocean is may be lifted up and nations cover the face thereof. Empires and republics may grow and decay. Systems and creeds and isms may fade from the minds of whole races who had trusted them for centuries. Fancies may yield to the field of facts, and institutions that have served their purpose give place to better; but be not afraid.

The plant that has ruled from the beginning will rule for the future. The purpose will be carried on and carried out.

I will not—I need not believe that the worse things are to prevail, I refuse to be afraid when changes come.

I look far out among the universe, to the bounds where human appliances can reach no farther, to where their revelations have an end; on to where calculation can tell us no more; on to where imagination is lost, and conjecture impossible.

I turn to the records within the rocks; I read the printed page of human history, I walk among the leaves, and I know there is progress. I know that all is tending onward and upward.

Miss Trix Blanton next appeared in a charming solo, "The Nightingale," which was received with a shower of applause.

Miss Daisy Templin followed with a choice recitation, which took the audience by storm. It was "A similar case," and to which both the voice and manner of the pretty little Miss were admirably adapted. It was a real gem.

With music by the glee club, composed of Deck Graves, Boyd Graves, Mrs. Hill, Misses Sarah and Maud Graves, the exercises for the evening closed and the audience was dismissed.

Throughout, the evening's entertainment was most pleasing, and those of our people who were not present missed a rare treat.

THURSDAY, DECEMBER 6TH, 9 A. M.

Society met in the opera house, and after some arrangement of the fruits, the society was called to order by the President, J. C. Evans, and opened with prayer by Rev. Dr. Edminson.

A telegram was read by the secretary, from the Kansas State Society, sending greeting, and was answered by the President.

The following committees were appointed:

Obituary—D. S. Holman, Springfield; Capt. E. P. Henry, Butler; Dr. Morerod, Nevada.

Finance—Henry Speer, Butler; N. F. Murray, Elm Grove; Z. T. Russell, Carthage.

Fruits and Flowers—G. F. Espenlaub, Rosedale, Kansas; Prof. J. W. Clark, Columbia; W. G. Gano, Olden; Mrs. G. E. Dugan, Sedalia, Mrs. L. A. Goodman, Westport.

Visiting Members—A. Ambrose, Nevada; A. H. Gilkeson, Warrensburg; J. B. Durand, Prairie City.

Transportation—J. Ames, Carthage; C. C. Bell, Boonville; J. K. Gwynn, Clinton.

Final Resolutions—W. R. Laughlin, Elm Grove; L. Chubbuck, St. Louis; J. H. Logan, Nevada.

Special Committee on Fruits from the Agricultural College Farm—Frank Holsinger, Rosedale; W. G. Gano, Olden; Henry Speer, Butler; D. S. Holman, Springfield.

REPORT ON ORCHARDS.

BY W. G. GANO, OLDEN.

In making this, my report on Orchards, I will confine myself to the south and southeast portion of the state, which is principally new, and but little progress has, as yet been made in horticulture, and especially in a commercial point of view, the principal part of the planting being for family use.

I have corresponded with twenty-six counties in said southern part of the state, asking the following questions:

The condition of orchards, and the causes for being good or bad?

Fruit crops and in what condition?

Any effort being made to destroy the insect enemy of fruit?

Is commercial orchard planting on the increase?

The per cent. of fruit trees planted that make a thrifty and profitable orchard?

The varieties that succeed best in your locality, and anything that you have observed that would be of general interest in orchard growing?

From these twenty-six counties I have received replies from seven, and to encourage these, I will make a report from each county that responded, separately.

OREGON COUNTY.

Reports planting for family use only. Over one-half of the fruit destroyed by insects, and more than one-half the trees planted never live to bear fruit.

With proper care all kinds of fruit do well.

Complains of apples rotting on the trees; gave his reason for the causes, which I shall notice further on in this report.

CHRISTIAN COUNTY.

Orchards in good condition; some commercial orchards being planted; 100,000 apple, and 20,000 peach and plum trees planted this last year; pears blight badly; have a new insect that destroys the apple bloom.

JASPER COUNTY.

Reports orchards in good condition. Fruit 80 per cent of a crop, and medium in quality.

Insects on the increase from year to year; no particular effort is being made to check their ravages.

Orchard planting has increased 20 per cent the last two years, and 90 per cent of trees planted last year are in good condition.

LACLEDE COUNTY.

Orchards in good condition; some injury to fruit by cold wave and hail storms.

But few commercial orchards; all kinds of fruit do well.

WAYNE COUNTY.

Conditions all good. Heavy crops of all kinds of fruit.

No commercial orchards; but planting for home use, on the increase, and of better varieties; people beginning to cultivate a taste for fruit growing.

All kinds of fruit do well.

RIPLEY COUNTY.

Orchards in bad condition; causes improper planting; digging a small hole, and wedging the roots down, starving the tree, using no fertilizer and no effort to destroy borers, or other insect pests; but where proper care is taken, orchards are in good condition.

Speaks of an apple tree 54 years old, healthy and vigorous.

Has lived in Ripley county 17 years, have had but one failure in fruit within that time, that was in '86. An increase of 50 per cent of orchard planting, some commercial.

FRANKLIN COUNTY.

Conditions good; have had the best growing season, and crops for years. The quality of fruit has never been excelled, taking all varieties. Orchard planting on the increase; but greatest attention is paid to plums and pears. The Keiffer is the principal variety grown; and of plums, the blue Damson. The number of trees planted the past year about 20,000.

HOWELL COUNTY.

Much progress in horticulture, with plenty of room for more; a good deal of interest is manifested by companies, as well as private individuals, to make fruit growing a specialty, planting largely for commercial purposes, and in this lies the future success of fruit growing. Orchards are in fine condition. Eighty per cent crop, 75 per cent of perfect fruit; 90 per cent of trees planted in commercial orchards are in thrifty condition. Insect enemies are few as yet. The number of fruit trees planted last spring was about 40,000; the number planted this fall, and to be planted next spring, will amount to 60,000—30,000 at or near Olden.

Howell County is fast coming to the front as a peach growing county.

Commercial planting is on the increase, not only in Howell county, but Texas, Wright, and all along the line of the K. C., Ft. Scott & Memphis railroad.

I have been frequently asked the question, since I have been in this part of the state, the cause of apples rotting on some trees. Not having seen the trees I inquired if it was confined to any special variety? The answer was that the cause certainly was from some disease in the tree; and on examination found it to be the case; for in every instance where the fruit was affected the tree was in a weak, feeble condition; the trunk near the surface of the ground, and larger roots were affected; some orchards seemed in a much worse condition than others; and the trees affected the most were those standing in rather low, damp ground; it first occurred to me that those trees had *wet feet*, and yet think that to be the cause to a great extent.

Mr. Ben Gunn, of Oregon county, says, that 7 or 8 years ago, about the latter part of October, or first of November, came a very sudden and severe cold spell, that froze the sap in the trees so that the bark burst on the trunks of many of the fruit trees. Very many of them died, some partly recovered, but have been gradually dying out, since they have come into bearing, and that this freezing is the cause of the disease in the tree, and rotting of the fruit. In every instance where the tree was affected by the freeze the most, the fruit was correspondingly affected. It first appears to be sun scald, and rot sets in before the fruit is fully developed.

Is orchard planting in excess of the demands for fruit; or, in other words, will fruit raising be a profitable investment, in years like this, of

plentifulness, and low prices? We frequently hear this question asked, and even question ourselves to that effect. And like a great many questions of this character, can be answered, yes, or no. The day has gone by when the typical farmer of Missouri, (he who did everything in a *slip-shod* manner,) could, perhaps, shake his apples from the trees, dump them into a sack, and haul them to market in a lumber wagon and get a good price for them; and in the later years, he that handled his fruit carefully and got it to market in good condition, secured good prices; for the time was then, that the dealer was obliged to leave his place of business and go to the locality where fruit was grown; even taking his help with him to make his barrels and pack the fruit bought from the farmers' wagons, thus spending his time and his means in order to secure the necessary article for his trade, and then frequently in poor condition, but it was the only way he had of securing his ten, twenty, fifty, or one hundred cars of fruit. The day has been, when we saw the quotation of bacon, we knew that it was slaughtered and cured by the farmer; or the quotation of butter, we knew it was made by the farmer's wife, or daughter; but those days are of the past, never to return. He that plants an orchard with the expectation of hauling a few loads of fruit to market and getting a fair living price will be disappointed; and I care not how well grown, or nicely handled this fruit may be.

But he that will make fruit growing and handling a specialty in all its particulars, planting the most profitable and saleable varieties, cultivating and caring for his trees, so as to induce the most thrifty and vigorous conditions possible, fighting and destroying the insect enemies to fruit and trees, picking and packing in the most careful and honest manner, and shipping his products to market as other manufacturers do, can, no doubt, make it profitable. When the fruit grower can put his product on the market and sell it strictly on its grade or class, as the miller, the dairyman, the meat packer, then the fruit dealer will stay at home and send his order (as dealers in other products do,) to the fruit grower, for his five, ten, twenty, or one hundred cars of fruit, and when he sees his brand, will say, *I know him.*

But I would by no means try to discourage any one from planting fruit, but would say to every one that has a home, *plant fruit*, and plant abundantly, it will pay to consume in your family.

W. G. GANO.

REPORT ON ORCHARDS.

BY HENRY SPEER, BUTLER.

To the Officers and Members of the Missouri State Horticultural Society:

As a member of your committee on orchards, I submit the following report: The orchards of this part of the state are in a good healthy condition, and have produced the past season a good crop of very fine apples, and have gone into winter quarters in good condition for the coming year. The interest in orchards, (thanks to our horticultural societies) is on the increase, and more trees are being planted from year to year, and many are learning the lesson that in order to have a successful orchard, cultivation and care is necessary. A few commercial orchards are being planted, but a great majority are family orchards for home use, and these I am sorry to say, are the ones most seriously neglected. Some experiments have been made in fighting the Codling moth by spraying with arsenical compounds, which have been generally successful, very materially reducing the ravages of this pest, and I hope at no distant day we may be able to entirely overcome it. The price of apples has not been very satisfactory, but orchards well cultivated and of the proper varieties have paid their owners very well. The great trouble in most instances has been unprofitable varieties. Our old friend, the Ben Davis, still holds the lead in the minds of most growers, but I have found the past two years in my own neighborhood, and within my own knowledge, that the Willow Twig has been the most profitable apple of all, and I believe it to be one of the very best and safest trees we have, especially on rich heavy soil; but let each study well his own situation of soil, and conditions, and plant accordingly, and intelligent planting and culture will be amply rewarded. The pear this season has been unusually free from blight, but the crop was very light and very few are being planted.

The peach in this part of Missouri was a complete failure the past season, but the trees made a good growth, and are in good condition for a good crop next year. I have noticed the past season that a fungus

growth on the apple, which I, for want of a better name, call the Black Scab, is spreading and extending its area, and appearing on varieties which I had not before noticed to be attacked. The Missouri Pippin and Dominie seem to be peculiarly subject to its ravages, and I fear it will give the orchardists trouble.

REPORT ON ORCHARDS FOR 1888.

BY CHAS. PATTERSON, KIRKSVILLE, MO.

Last year, most of our orchards were entirely barren, but this year has fully made the average good. In fact, we do not remember ever having as good a crop of apples, especially when we consider that they were proximately free from worms, and had very little scab. I have not the least doubt, but we could have made as good an exhibit at St. Louis as any county in the state, if the proper efforts had been made to collect it, for I have found specimens of different varieties as large as any I measured and recorded at New Orleans.

Thanks to some of our merchants, who hustled around and found some market for them, the great surplus has mostly gone to less favored regions, at prices probably as good as the average, leaving quite a little income to many of our farmers, which they had scarcely dared to calculate until gathering time, while I have made up something like over six thousand bushels into cider.

And to all appearances, the trees are in as good condition for another crop as we usually see them, as the season has been very favorable for tree-growth, as well as the development of the fruit. But, considering the universal sod-bound condition of the roots, it would surely require the next season to be as good as this to produce even half so much. Nevertheless, it is generally the unexpected that happens, and I feel less and less confident of anything.

This year has disturbed and unsettled my theories of orchard management, until I am completely at sea, without rudder or compass. While I had a very fair crop last year, compared with most others, and was rather wishing for a very moderate one this year, preferring to not exhaust the trees for future crops, I was not at all prepared to see very nearly all of the heavy crop drop off, when at the size of cherries and hickory nuts. Various theories could be assigned as the cause of this, but I regard all as the merest guess-work. I sprayed them with Paris green, 7 oz. to 54 gallons water, but trees have been sprayed over and over again, with stronger proportions, without hurt to either fruit or foliage. But something did hurt even the foliage, so that the off condition was plainly visible to casual passers on the road, although the extremities made a very fair growth, and the bark on bodies and branches is bright and healthy. I washed the bodies with Canada potash, one pound to six gallons of water, for borers, but there is no sign of hurt, on the bark from that, even on young trees and last year's growth of sprouts. They have been cultivated every year since planted, 1878, and that fact is perhaps oftener referred to as the cause than any other, because it seems to favor those whom I have been urging to break up their ten year old sod. Mr. Thomas Luke, of Trenton, writes me that his orchard is about the same age and condition, and always drops its fruit, and he will now sow it with clover and never plow it again. I have tried to pull up my end even with friend Murray on this subject, but I begin to fear he will have to give me longer lever, if not allow me to ride awhile. I infer that he has an older orchard, cultivated continuously, and probably knows of others, and I call upon him to put his experience against this record. My orchard is nearly all in Raspberries and Blackberries, which we have for years cultivated as shallow as we could, but, as soon as I can replace them elsewhere, I intend to sow it in clover. But I will watch the trees closely, and whenever they begin to make short growth, I will break it up at a venture. And I will cultivate the berries still shallower if possible, after this. However, if I should have a good crop next year, that might change my program. I do not feel hurt, and am not complaining. I have got more fruit from that orchard now, than another orchard of similar size and age, not cultivated, and my trees are nearly as large again. I can afford to let it rest another year or two, and then get more fruit in one year, than all the others ever produced. But we want to learn all we can from it.

I have not had time to inform myself minutely of the conditions of orchards in other counties in my part of the state, but from all I have

learned, and the soil and climate being so nearly uniform, until we get near the rivers, I think the same remarks would apply to all Northeast Missouri.

I am sorry that your time of meeting conflicts with the Cider and Cider Vinegar Makers' convention in Chicago, which deprives me of the pleasure of a personal "shake."

SETTING OUT AN APPLE ORCHARD AND CARING FOR IT.

BY H. A. ENSIGN, NEVADA.

This subject has furnished the theme for many an article of more or less merit. The public has had precept upon precept, here a lesson and there a lesson, yet ignorance as respects the best methods to pursue is the rule, and enlightenment is the exception. Our admonitions have evidently fallen upon sluggish ears and have not been heard, or, if heard, not properly heeded. Many farmers set their trees very nearly as you would set a fence post. They dig an 8x10 hole in the ground supposed to be deep enough to cover the roots of the tree, and then proceed to cut off and to double in until they are able to force the tree into its prison house, afterwards throwing on a little dirt to make everything secure. In this condition the tree stands between life and death until some unruly bovine come along and breaks it down and its epitaph should be, died from brutal treatment. There has unquestionably been enough fruit trees set out within the boundaries of our state to convert every farm into a fruit paradise, but a decent regard for truth compels me to admit that not a few of our oldest farms have not to-day a dozen fruit trees of any description standing to cover their nakedness, while one-half of our farms have not sufficient fruit trees upon them to supply the wants of their occupants, to say nothing about commercial purposes. Under such circumstances what shall we do. I answer, "we

should cry aloud and spare not." We must continue to preach the gospel of tree planting and tree protection, "in season and out of season," until the masses come to know and feel its importance, and shall conform their practices thereto.

The first step preparatory to setting out an orchard is to determine how large it shall be, and right here let me advise you not to approach this question in a mean, stingy, parsimonious spirit. You are for once, at least, to do something for posterity as well as for yourself—let your magnanimity of soul be equal to the occasion. After determining the size of your orchard and its location, you should next in order set about preparing your plat of ground to receive its treasure. If the land lays high, is rich and under a good state of cultivation, there is not much to be done. If, however, the soil is thin, the land low and flat, with a cold clay or sub-soil, there is some work to be done in this case. You must be liberal with your fertilizers and tiling. Plow deep and harrow thoroughly until the ground is light and mellow, suited to a wheat or a corn crop and then you can tend it. Having progressed thus far, it is now proper that you should select and dig your trees, if you have not already ordered them, from some responsible nurseryman. In making your selection, choose thrifty trees not over three years old. As to varieties, you must be governed by an intelligent knowledge of what kinds succeed best in your locality, and for what purpose you are setting your orchard, whether chiefly for home use, or for market purposes. A few choice varieties giving a rotation of fruit in their season, is better and more profitable than a multitude of varieties chosen at random. Your trees are now ready to go to your grounds, and to be healed in at one or more points adjacent to your proposed orchard, each variety kept distinct from all others.

The ground is now ready to receive the trees, and they are ready to be set. How shall the work be done? There are several methods of accomplishing this, all probably possessing more or less merit, but I am here to tell how I do it, and with your indulgence, I will proceed to do so. To make myself better understood, I will suppose that I have set apart ten acres for orchard purposes. If my lot is square and I set my trees thirty feet apart each way, I can set twenty-one rows or 441 apple trees and have a border left of fifteen feet around the entire plat to be occupied in time by the growing tops. I therefore set my first row of stakes in line across one side of the plat 15 feet from the outer line. This done, I follow in line of these stakes with a 12 or 14 inch bar shin plow, cutting a furrow as straight and as deep as I can across the plat of ground, returning (if the plow is right handed). I give the

near horse the furrow, and by this means the furrow is usually made sufficiently deep and wide to receive the roots of the tree without further digging. In like manner I continue until my furrows are all opened out. There is now but one step more to take before commencing to set my trees, and that is to set two or more stakes in line crossing my furrow at right angles and 15 feet inside of the outer line of my plat of ground. These stakes are to guide me in setting my first row of trees. Armed with a shovel and aided by two boys, one to bring the trees, and the other to steady them while the roots are being covered with mellow earth, a man can set from 100 to 125 trees a day and do it well. After the trees are in the ground and the dirt has been thoroughly pressed about their roots, a strong horse rode by a boy, attached to a 10 or 12 inch plow, by a stout singletree, should pass up and down on each side of every row of trees throwing the loose earth back into the furrows you made in which to set your trees, filling them up. This plan of setting an orchard has several advantages over the usual method of digging a hole in the ground of more or less magnitude to receive the roots of the tree. By planting in a furrow it does not matter how long the roots are, you have room to extend them indefinitely. Another advantage is by planting in a furrow, you secure better drainage, thereby enabling the tree to better withstand the extremes of wet and dry. This is a vital point.

As to the after treatment of your orchard, grow it as rapidly as you can by good care and cultivation. Corn is a very good crop for a young orchard, at first giving your tree the space of a single hill, and afterwards more latitude as the top expands, but whatever you do, don't grow weeds in your orchard; they are a reproach and nuisance wherever found, and doubly so in an orchard. Having grown your trees so that they are now capable of bearing up a reasonable burden of fruit, you can safely check their growth somewhat by seeding your orchard down to tame grasses. This will probably bring it into full bearing, gladdening your heart with an abundance of luscious fruit good enough for angels to feast upon. But if you expect to maintain the vigor and fruitfullness of your orchard be liberal to it, feed it well. Don't undertake to get two full crops from it the same season, one of grasses and the other of fruit. If you do, your greed will sooner or later destroy your orchard and you will find when it is too late, you have "killed the goose that laid the golden egg."

There are other matters growing out of my theme to which I would gladly refer if time would permit, such as trimming the orchard, head-

ing back the tops of such trees as are inclined to grow too rampant, and keeping the bark on the trunks of the trees clean and smooth, but of that I will speak some future day.

ADAPTATION IN HORTICULTURE.

BY J. AMES, CARTHAGE, MO.

In the business of fruit growing, the question of adaptation or fitness should enter into every step, from the first purpose formed in the mind to have an orchard or fruit garden, thence onward at every successive step or stage of development, to the completed fruit farm. We are considering and deciding questions of fitness or suitableness. In no other business is there so great a necessity for wise discrimination and intelligent action.

In illustration of my subject, let us first see the relation of the orchard and fruit garden to the home. Is it important that we have a home? How can we sufficiently express and emphasize the value of a home? A rural home without trees, or an orchard or fruit garden? What kind of a home would it be? Is there any other thing so well adapted to the home to beautify it, and delight the eye, and be a kind of perennial spring of luxury, a continual feast?

When God formed man out of the dust of the ground, and breathed into him the breath of life, and he became a living soul, God at once planted a fruit garden, and there put the man whom He had made. In this garden the Lord God made to grow every tree that is pleasant to the sight, and good for food, and the tree of life also in the midst of the garden, and made it man's business to dress it, and keep it, saying of every tree of the garden thou mayest freely eat—except. Here you have God's idea of a home; and it should be man's first and chief purpose

of life, to come into possession of this birthright of God. Here we have the basis of that important plank in the labor union platform protecting every man's right to an inalienable, God-given home. And here to-day I love to think of this horticultural meeting as a kind of Labor Union Society, not gathered here, seeking to find some new, sharp, short cut to great fortune through horticulture, not by union and co-operation to mass our strength to defeat or take any advantage of our neighbor, in this or any other profession. But I trust we are here as disciples to learn God's methods as expressed in tree and plant life, and the laws that govern all things in the mineral and vegetable kingdom, and all these in their relation to man. We shall most undoubtedly find that men do not gather grapes from thorns nor figs from thistles, that a corrupt tree cannot bring forth good fruit, neither can a good tree bring forth evil fruit. Be not deceived, God is not mocked, for whatsoever a man soweth that shall he also reap, whether in natural or spiritual things. We have a right to believe that God intended that we should have homes patterned after this perfect, this Divine model, wherein every tree that is pleasant to the sight and good for food, is made to form so important a part, and reared in such a home, and taught as God directed when He said: "These words that I command thee this day, shall be in thine heart, and thou shalt teach them diligently unto thy children, and thou shalt talk to them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou riseth up, and thou shalt bind them for a sign upon thine head, and they shall be as fruitlets between thine eyes, and thou shalt write them upon the posts of thine house, and on thy gates." May we not expect to see generations of people going forth from such homes, filled with the spirit of him who made us in his own image and likeness to a life of usefulness, to a life of service to others, and not of self only, and so became exalted in the highest sense of exaltation.

Leaving the question of the relation of horticulture to our homes and passing all those questions of adaptation of the various kinds of fruit to succeed best in our own location and climate, what exposure is best, whether north, east, west, or south for orchard growing, and what kind of soil is best adapted to this or that variety of apples, pears, peaches, plums, or cherries, and when to plant, and which varieties of each to plant, and how to protect from rabbits, insects, and other enemies, passing all these questions so very important in the science and art of horticulture, we will endeavor to consider some questions pertaining to the adaptation of our fruit growing to the market, and the changes likely to occur in the future. In the past the markets for our small fruits have

been principally in the West, in Kansas and Colorado, and North as far as Kansas City and St. Joe, but very little has gone as far North as to reach Iowa. Are we to conclude that this state of things will continue in the future? Shall we continue to plant with reference to supplying our own latitude and climate only? Or shall we plant expecting to feed our neighbors four, five or six hundred miles to the north or northwest of us? And if we find difficulties in the way by reason of bad connections, too high rates or any other obstructions, however numerous or great, shall we abandon the effort? Or shall we rise to the importance of the occasion and by massing the forces of all our Southwestern fruit growers, proceed to removing every obstacle we find in the way, and go in and possess the land?

Our market for apples also in the past has principally been in the South and Southwest. Very little of this crop has gone to the North and Northwest. Is this the best and only thing we can do with our apple crop of Southwestern Missouri?

Is it not a fact that our Red June and Early Harvest apples ripen from four to five or six weeks before the same varieties do in Michigan, Northern Illinois and Ohio, and with equal facilities can we not place these apples on the markets in Iowa, Minnesota and Dakota and have our entire crop disposed of before Michigan can get her apples on to those markets? And is not the same true of the Maiden Blush, the Lowell, the Golden Sweet, and other varieties that ripen and fall to the ground during our long summer and go to decay and are lost, which might be gathered early and shipped in refrigerator cars and sold from cold storage on the markets in Minnesota and Dakota to supply the October and November market.

Is it possible that this Southwest Missouri with all her possibilities for fruit growing has no mission of usefulness in the way of feeding the hungry millions of the great Northwest as well as the South and Southwest? We believe that in the near future we shall find that we have not planted enough early summer and fall apples to supply the great markets that shall soon be opened to us in this vast extent of rapidly developing Northwestern country, and that there will be a necessity for a re-adaptation for our orchard planting to adjust our fruit growing to a great market that wants something besides the Ben Davis.

A. Nelson, Lebanon, then read a paper on "Orcharding on the Ozarks." He had cleared two farms in York state and was free to say he had made no mistake in coming to Southwest Missouri. For general fruit-growing the Ozarks and Southwest Missouri in his opinion, stood at the head as a fruit-growing section. An elevated soil north

and east slopes, he thought best adapted to successful fruit culture. His long residence in the fruit-growing section of New York enabled him to estimate properly the capacity of Southwest Missouri for growing fruit and he wanted to say that in his opinion no part of the United States was better adapted in both soil and climate than Southwest Missouri. He was of the opinion that the Ben Davis was the apple for the Ozarks. He took a car load of apples from the Ozarks to his New York home six years ago, in order to determine the quality of the fruit grown in Southwest Missouri. These apples were to have been hand gathered and packed in the orchard. That which was honestly packed he found to be in excellent condition, showing that our fruit will keep. Those apples however, which were hauled in wagons to the car were in very bad shape. Why, in New York state a man would as soon think of hauling a thousand dozen eggs loose in a lumber wagon as hauling his apples loose. The only way to handle apples is to hand pick them and hand pack them in barrels right under the trees which bear them. If this is done our fruit will reach the market in prime order and command the highest prices, as our fruit is as fine as grows in the land. This was a very valuable essay and was heartily applauded.

Jacob Faith, Montevallo, by invitation, read a paper on "Will Apple Culture Pay?" He began a very interesting and exhaustive paper by asking the question and answering it affirmatively, going on to show by facts and figures, that, considering the cost and labor expended, no investment made better returns.

ORCHARDING ON THE OZARKS.

BY A. NELSON, LEBANON.

Mr. President, Ladies and Gentlemen of the Missouri State Horticultural Society:

Your worthy President has assigned to me the subject of "Orcharding on the Ozarks." In this I am fearful he has made a mistake, as it is known to a few of you at least, that I am only a newcomer on the Ozarks, and to grand old Missouri, yet I am proud to-day in saying that so far as fruit interests are concerned, I made no mistake in locating on the Ozarks.

Six years ago I commenced cutting out bush and timber clearing off land to make me a home. In this time I have cleared up and put in cultivation about three hundred acres of land. During my six years here I have not been idle by any means. I have tried to be a close observer of what I thought was for the interest and prosperity and bettering the condition of those in my locality, and have, I believe, proved beyond a doubt, this fact, that for general fruit growing, the Ozarks stand at the head, and before I close this paper, I will try and give my reasons for this belief.

First, be it known to you that the Ozarks or the raw lands of the Ozarks are to-day covered with a growth of timber. This with her soil so well adapted to orcharding and other fruits, attracted my attention as well as the attention of other fruit growers who have visited our part of Missouri and examined her orchards and her fruits. I have come to this conclusion in making examination of different fruit grounds in different localities, and soils; that for long-lived trees giving good crops of first-class fruits, we must select the elevated localities, and if a northern or eastern slope, so much the better, for I find that for fruits grown on our uplands, which are all thin soils, such fruits are equalled by few and excelled by none; and all that is now wanting to make Southwest Missouri the leading fruit growing locality of the world, is live, wideawake, energetic and progressive men, who will force the old fogy

element into the last ditch, and men who will keep abreast of the times by joining with and taking part in meetings of state and county horticultural societies.

With such progressive pushing men in the field who dare attempt to put on paper what the results will be twenty to thirty years from now in the way of fruit growing.

The subject of fruit growing, while new or nearly so to me in Missouri, is not the case while living in the state of New York, for be it known to you that in coming to Missouri, I came from a land and a home of fruits and flowers and how could an ordinary man help being imbued with a spirit of progress, when living among life-long fruit men, such as T. G. Youman & Sons, of Walworth, New York; Elwanger & Barry, Rochester, New York; the Haulses, of same place; James Vick, also of Rochester; Hiram Sibley and others. By these men with ample means and great efforts put forth in the propagation and cultivation of the different fruits, shrubs and flowers, Western New York has gained for herself a most enviable name—a name that the people may well feel proud of, and in order to hold up Missouri fruits to the position now assigned her, much earnest work is to be done, of which I will refer to before closing.

My first visit to Southwest Missouri was made six years ago last October. I came to spy out the land, its facilities and conditions for general agricultural and horticultural purposes. I traveled over Laclede county, parts of Camden and Dallas counties, and much of Webster and a small part of Greene county. In my travels lasting some twenty days, I made many examinations of orchards, the different soils I found them planted on, the size, quality and condition of the trees and fruits. In the examination of the old orchards, I found many of the York State varieties—New York Belle Flower, King of Tompkins County, R. I. Greening, Golden Russett, Newtown Pippin, Spitzenburg, etc., etc., while in the young orchards I found apples that to me were new.

But it was in meeting with the old varieties of York State apples that I was entirely familiar with, the growth, habits and qualities, that made the deep impression on me that this was truly a wonderful fruit county, and from this I was forced to believe that soil and climate had all to do with the quantity and quality of Missouri fruits. As my own apple orchards are yet too young to give results, let me give you results of a small Ben Davis orchard that is located four miles west and north of our city, owned and managed by ex-Judge Daniel Beckner. This orchard is now thirteen years old from the graft; trees were set in orchard as

yearlings; set twenty-four feet apart; have had careful pruning, though not excessive; all superfluous limbs and water sprouts have been rubbed off or cut off twice each year. The land was cropped regularly the three first years, then seeded down, and pasture for hogs since that time. Now for financial results: There has been five crops of apples taken from this orchard, and Mr. Beckner has kept a correct account of his merchantable fruit, and has to the credit of each tree the sum of \$7.50 per tree, besides the culls and second quality for drying and making cider. At seventy trees per acre it is easy to see what kind of a profit there is in orcharding in Southwest Missouri, or I may say in any part of Missouri, where you have the same soil and climate that we are blessed with.

Mr. Beckner, while a man of nearly sixty years of age, is preparing to put out about 2000 Ben Davis this coming spring, having a strong faith in the future prospects of fruit growing on the Ozarks, and right here I want to make a statement that affects to-day and will affect for all time to come unless changed. (This may come up under another head and in some other way, but I have been there and I know whereof I speak.) After my travels over the country six years ago and after having seen and examined the fruits and other crops of Missouri, I made up my mind that I would take a car load of apples to York State with me, and, in doing this, I could then fully determine the keeping quality as well as the general quality of the fruit. I bargained for a car of fruit that was all to be hand-picked, barreled and put in good shape in the orchard. I paid for my fruit and left directions for shipment, and I left for my native state. In about three weeks car arrived at Buffalo, N. Y., and I had arranged to place from two to six barrels of fruit in the hands of different families in the City of Buffalo. When car arrived I went to see it and began examination of fruit. What did I find? All fruit that had been properly field-packed in orchard was in splendid condition, but the fruit that had been drawn loose in wagons—about thirty per cent—was fully twenty-five per cent rotted or spoiled, and result was a serious loss out of the experiment yet, I think, it will prove a good investment in the long run, as I have fought this ruinous and slovenly way of handling our fruit ever since I located in Missouri, and if we want to hold up the reputation of our fruits in the markets of the world, we have got to sit down on this miserable practice of handling our fruits, and I feel sometimes that a law should be passed that would enable a true horticulturist to have a man arrested that was caught drawing first-class apples to market in a lumber wagon loose. And while on this most important point I hope this body, representing, as it does, one of the great-

est, grandest and noblest interests of Missouri, will take this matter in hand and enter their solemn protest against such handling of fruits. To my mind, the only way for apples to be handled is to be hand-picked and packed in barrels in the orchard and under the trees in which the apples grew. In this way and this way only can the fruit of Missouri be held up to that grand position now assigned to her and the grand position she has won through the labors and efforts that have been put forth by the members of the State Horticultural and County Societies.

And now to my own labors in way of orcharding and fruit growing on the Ozark. Four years ago, last spring, I put out different varieties of apricots, plums, cherries, crabs, apples, etc., etc., also setting out different varieties of peaches and some 750 apples. The following fall I put out 800 peaches and 1000 apples, and same years put out 7000 hills of black raspberries, and following year 2000 red raspberries, and last spring put out 1500 Ben Davis apples and 100 Tulpehocken or Fallawater apples. We had about three thousand apples, 800 peaches and some berries to look after. A part of my peach trees have given me two full crops, another part one full crop, while a large majority has not borne at all. I have, no doubt, made many mistakes, yet some one has to make mistakes or else lookers-on would gain no benefits.

My first orchard I put out I put it in new seeded ground, seeded to grass alone. After trees had been set one year I had my men take spading forks and work the ground all up mellow about the trees, a circle four feet across. This I have kept up each year, leaving orchard still in grass; trees are making a good healthy growth. A few Ben Davis bore fruit in 1887, and last spring it was a sight to see the bloom on this young orchard, and I was looking ahead for a big job plucking fruit or thinning out from the young trees. But Dakota saved me the trouble by sending one of her cold waves down here after fruit was nicely set, and that cold wave did more in one night than I could have done in a week of good work. Result—this season a strong growth of good wood, and if Dakota will keep her blizzards at home next spring, I hope to show you fruit next winter from that orchard.

In closing I want to say one word about planting trees from an ornamental standpoint as well as financial. When a small boy living at home in York state, father set out a row of maple trees on two sides of his farm, lying on the main road; this must have been fifty years ago, for at fourteen years of age I left that home to work my own passage through life, and the trees were then fair size, but I returned afterwards to that old home and many a time have sat under and enjoyed the cool shade of those grand maples that I had helped to plant in my boyhood

days. As the time passed on the trees grew, while the family were resting. Father had many chances to sell his farm at \$10, \$15 and \$20 per acre more than other farms in same locality. By and by a man came, dropped in the neighborhood and offered father \$80 per acre for his farm—he sold it ; and fourteen years from the time of my leaving home I returned, but a change had taken place. The old home was occupied by a stranger, and that stranger was ready to sell me the old home back at \$5 less per acre than he paid for it ; I was once more in the old home to enjoy the shade and hear the birds sing from the branches of the trees I had helped to plant twenty years before. But another change was to take place, I put the old home in nice shape again, here and there, and thought I would be contented, but fourteen years had made great changes. Some of my school mates that had played with me under those trees or in the orchard, or fishing or swimming in the pond near by, were sleeping their last sleep, some were in one part of the country, some in another and it did not prove to be the happy home it once was. I sold the old home at one hundred round dollars per acre, other farms just as good in all respects, excepting the maples, could have been bought at \$75 to \$80. I know by this that every man owning a home, let him be the young man just starting out in life, or the middle-aged man, or the man who is nearing the end of life's journey, if you have vacant ground, plant a tree, if not a fruit tree, or a slip, then plant a shade tree and if you and I do not live to enjoy it, our children may. And when we pass away our neighbors and friends may truly say of us, he has made this part of the country better by his having lived in it ; and in closing can do no better than quote the beautiful lines written by Lucy Larcom on planting a tree :

PLANT A TREE.

He who plants a tree

Plants a hope.

Rootlets up through fibres blindly grope ;

Leaves unfold into horizons free.

So man's life must climb

From the clods of time

Unto heaven's sublime.

Canst thou prophesy, thou little tree,

What the glory of thy boughs shall be ?

He who plants a tree
Plants a joy ;
Plants comfort that will never cloy ;
Every day a fresh reality.
Beautiful and strong,
To whose shelter throng
Creatures blithe with song.
If thou couldst but know, thou happy tree,
Of the bliss that shall inhabit thee.

He who plants a tree
He plants peace ;
Under its green curtain jargons cease,
Leaf and zephyr murmur soothingly ;
Shadows soft will sleep,
Down tired eyelids creep,
Balm of slumber deep.
Never hast thou dreamed, blessed tree,
Of the benediction thou shalt be.

He who plants a tree
He plants youth ;
Vigor won for centuries, in sooth ;
Life of time, that hints eternity !
Boughs their strength uprear,
New shoots every year
On old growths appear.
Thou shalt teach the ages, sturdy tree,
Youth of soul is immortality.

He who plants a tree
He plants love.
Tents of coolness spreading out above
Wayfarers he may not live to see.
Gifts that grow are best ;
Hands that bless are blest ;
Plant. Life does the rest !
Heaven and earth helps him who plants a tree,
And his work its own reward shall see.

—Lucy Larcom.

REPORT ON ORCHARDS.

BY J. B. DURAND, PRAIRIE CITY.

I wish to give a few observations and calculations which I have made on actual experience or trials. I object to making theoretical calculations in any branch of business, and much more so in the products of our orchards. Neither do I approve of taking the products of a single, or even a dozen trees, and upon the yield of these, make calculations of an orchard of several thousand trees. If you do this you will certainly be disappointed. Just as certain as was the lady, who, with one speckled hen, obtained one egg each day; she purchased one hundred speckled hens, calculating on just one hundred nice fresh eggs each day, but what was her chagrin when it took a whole week to obtain that number. So it will be with the orchardist who calculates the income from a large orchard on the proceeds of a few individual trees.

When I planted my orchard I tried to keep my estimates below, rather than above, but I have not reached more than one-half my most sanguine expectations. However, I am not discouraged, when comparing my receipts with those of my neighbors, who have been engaged in other vocations.

The figures I give below include one year of nearly a total failure. This record is the actual sales, in barrels, for the four years named, not taking into account any that were evaporated, made into cider, sold, or used at home, which would about pay expenses.

1885.

	500 bbls.	Raised 1,500 bbls. per 1,000 trees.
Jonathan,	500 bbls.	Raised 1,500 bbls. per 1,000 trees.
Grimes,	88 "	880 "
Yellow Bell,	45 "	135 "
Ben Davis,	450 "	500 "
Janet,	400 "	450 "
Rome Beauty,	30 "	300 "
Winesap and Gilpin,	all cider.	

1886.

Jonathan,	50 bbls.	Raised	160 bbls.	per 1,000 trees.
Grimes,	35 "	"	350	" " " "
Yellow Bell,	15 "	"	45	" " " "
Ben Davis,	60 "	"	72	" " " "
Janet,	40 "	"	50	" " " "
Rome Beauty,	20 "	"	200	" " " "
Winesap,	76 "	"	150	" " " "
Gilpin,	25 "	"	250	" " " "

1887.

Jonathan,	219 bbls.	Sold	730 bbls.	per 1,000 trees.
Grimes,	9 "	"	90	" " " "
Yellow Bell,	47 "	"	160	" " " "
Ben Davis,	76 "	"	194	" " " "
Janet,	12 "	"	14	" " " "
Rome Beauty,	19 "	"	190	" " " "
Winesap,	197 "	"	330	" " " "
Gilpin,	108 "	"	1,080	" " " "

1888.

Jonathan,	165 bbls.	Sold	500 bbls.	per 1,000 trees.
Grimes,	105 "	"	1,200	" " " "
Yellow Bell,	201 "	"	603	" " " "
Rome Beauty,	100 "	"	1,000	" " " "
Winesap,	430 "	"	720	" " " "
Ben Davis,	400 "	"	500	" " " "
Janet,	600 "	"	750	" " " "
Gilpin,	80 "	"	800	" " " "

This is the product of my orchard of seventy acres, planted in '74 and '75, four hundred of the trees were planted later and are just coming into bearing. It also includes a few White W. Pearman and Russells, which have made nothing.

The whole number of barrels for the four years was 4,646.

The average price received per barrel, \$1.20, making \$5,583.00; about \$80 per acre; \$20 a year, which is more than the land was worth when the orchard was planted, and take out the year 1886, which was

almost a failure, and count the other three years, would make as much each as the land is worth now, without the trees.

This is not very large, but I consider it better than other farm crops.

I would like to hear statistics from other orchards, so as to know whether I am doing well or not.

WILL IT PAY.

BY W. R. LAUGHLIN, ELM GROVE.

Will it pay to raise apples for market, in Missouri?

It is a question of net proceeds; of sum totals, and of years.

It is a problem in which many a factor is involved, and where some unknown quantities can only be revealed by processes and time. To some extent it combines changing conditions with possible features of an unknown future.

Perhaps it is in proper order first to inquire whether it has paid in the past. On this search for truth, let us turn the electric light of experience. Let facts—bushels, barrels and dollars—be submitted to him who inquires the evidence to him whose care is to know the truth. To individuals the right answer may mean a life success; or the wrong one may write all over his earthly span, failure.

To the state, the importance of a correct conclusion as to this business, is immense.

Years ago it was too late to harbor doubts as to the productiveness of the trees, or as to the size, color or quality of Missouri apples, and this year the nation and the world has had an opportunity to see, and taste, and know for themselves. The great fruit show at St. Louis, drove the nail clear through; and the show at our state society meeting, at Nevada clinched it.

STATEMENT OF G. W. HARVEY.

Mr. C. McGonigle, of the firm of Moses & McGonigle, who bought Mr. Harvey's apples, writes me, "He, Mr. Harvey cultivated in corn for several years, also in clover, and usually allows hogs during the summer. He is not a severe pruner. The tops of his trees begin near the ground, and in case of over-bearing, the ends of the lower limbs rest on the ground and support them above. He always picks his apples direct into barrels from the trees, never piling up in the orchard nor hauling in bulk!"

APPLES SOLD.

In 1881,	\$169.30
" 1882, 301 barrels, at \$2.75 per lb.	852.50
Varieties not kept.	

Total,	1021.80
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In 1883, 443 barrels, Ben Davis, at \$2.75,	1,210.00
" 67 " Willow Twig "	184.75
" 6 " Wine Sap, "	16.50
" 9 " L. Romanite "	24.75
" 3 " Janet "	8.25
" 2 " W. W. Pearmain "	5.50
" 89 " Fall Apples at \$2.00	178.00
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610 lbs	1,627.75

In 1884, 34 barrels, Summer, at \$1.40	170.00	
" 74 " Fall, "	1.00	74.00
" 640 " Ben Davis "	1.90	1,216.00
" 152 " Willow Twig "	288.80	
" 44 " L. Romanite "	83.60	
" 2 " Janet "	1.80	
" 4 " Wine Sap "	7.60	
" 5 " Belle Flower "	9.50	
" 3 " Jonathan "	5.70	
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958	\$1,857.00	

In 1885,	9 barrels,	Fall;	at 1.40	12.60
"	72	" Ben Davis,	" 2.25	162.00
		—		—
	81 lbs.			174.600
In 1886,	124 barrels,	Summer,	at 80c	99.20
"	45	" Fall,	" 90c	40.50
"	80	" Dominie,	" 90c	72.00
"	1,061	" Ben Davis	" 1.30	1,379.30
"	177	" Willow Twig	"	230.10
"	76	" Wine Sap	"	98.80
"	142	" L. Romanite	"	184.60
"	31	" Janet	"	44.20
"	27	" W. W. Pearmain	"	35.10
"	8	" Newtown Pippin		10.40
"	586 bushels,	Cider Apples,	at 12½c	73.37
		—		—
	2,358			2,267.57
In 1887,	63 barrels,	Summer	at 1.50	94.50
"		Sold in bulk		46.55
"	180	" Ben Davis	" 2.50	450.00
"	54	" Wine Sap	"	135.00
"	192	" Willow Twig	"	288.00
"	60	" L. Romanite	"	150.00
"		Cider Apples, plenty, say,		40.00
		—		—
	549			1,204.05
In 1888,	67 barrels,	Summer	at 1.05	70.35
"	100	" Fall	"	105.00
"	472	" Ben Davis	" 1.20	566.40
"	109	" Willow Twig	"	130.80
"	106	" L. Romanite	"	127.20
"	68	" Wine Sap	"	81.60
"	7	" Janet	"	8.40
"	8	" W. W. Pearmain	"	9.60
"	6	" Newtown Pippin		7.20
"	3	" Milam		3.60
"	300 bushels	Cider Apples		30.00
		—		—
	945			1,110.15

NUMBER OF APPLE TREES.

Ben Davis, 280 trees, about ten per cent. now dead.

Willow Twig, 100 trees, twenty per cent. now dead

Wine Sap, 70 trees, five per cent. now dead.

Little Romanite, 50 trees, five per cent. now dead.

Janet, 20 trees, in good condition.

Jonathan, 20 trees, in good condition.

Belle Flower, 15, one third dead.

Quite a number of Summer and Fall apples, not worth naming in this.

Dominie, 20 trees, ten per cent. dead.

This orchard was set out in 1876, and was four year old trees.

STATEMENT OF N. F. MURRAY.

"Eight acres of old orchard, planted seventeen years ago, twenty-four feet each way. 250 Ben Davis, 150 Wine Sap, 50 Janet; balance over 40 varieties of family and experimental orchard.

This orchard was planted in corn for five first years, then clover; weeds and hogs for three years. The last nine years it has had clean cultivation.

The showing of my books may be briefly told, by saying that for the last twelve years, the average per acre, per year, has been \$64.32. Had the entire orchard been Ben Davis, the average would have been at least \$100 per acre. My figures are for net proceeds, after paying all expenses. My large family used a great many apples, and we make a good deal of cider, and feed an amount of refuse—especially during years when the Codling moth has been so bad—to stock.

Apples used are not counted. My orchard is now in good condition. It was planted on land that had already been cultivated in usual new country crops and style for twenty-four years.

Mr. Murray's style of pruning is exactly the same practiced by Mr. Harvey. Low heads, careful, timely cutting. He has hauled in bulk to the station, also in barrels filled under the trees, and at times has shipped choice apples in one-third bushel boxes. Sells his whole fall crop at the station most years, but has several times shipped car loads.

I have made earnest efforts to get figures on the orchard of John W. Davis, of New Point, Holt County, but am able only to state general facts, but mostly of my own personal knowledge.

Mr. Davis has a large orchard, say 1,200 trees, of two ages. His practice is, and has been corn for the first few years, then clover, weeds and hogs. He is quite particular as to the time of year when his hogs shall or shall not be among his trees, and now has no damage done by them, but much good. For some years his only cultivation of the soil has been the hogs. His style of pruning is essentially the same as in each of the other cases. Has marketed in the different ways. Both Mr. Davis and Mr. Murray went this fall with car loads of their own apples to the markets. I am safe saying that in Mr. Davis' orchard profitableness ranks close alongside of Mr. Harvey's and Mr. Murray's. Several varieties besides the Standard, Ben Davis and Winesap have done notably well for Mr. Davis.

The statement of Mr. Harvey challenges our admiration for its minuteness of detail, and for its arrangement. In our region where he is well known, its accuracy goes without question.

Mr. Murray's orchard joins my own place, and has been before my eyes and subjected to my frequent and very careful inspection at all times of each season for eight years.

Mr. Davis lives fifteen miles away, but I have been often among his trees during the past seven years, and have constantly heard of their good health and large crops.

All three of these orchards stand on the Loess soil: Mr. Harvey's and Mr. Murray's among the hills, and Mr. Davis' on high prairie.

No two of them have been treated precisely alike, but they all teach us of thorough cultivation, while Mr. Harvey's and Mr. Davis' point strongly to clover and hogs used with care and judgment, and alternated with clean cultivation.

These orchards furnish instances, fair and just, to be used in answering the question: Will it pay? When we ask the same question about any other business, we do not go for an answer to the man who through either ignorance, laziness or incompetence has failed; but to the wide-awake man, who, learning all he could, has pushed his business and succeeded; or if he has failed, has done so because it would not pay.

Cost of land, of trees, of cultivation, of marketing, the element of time, the certainty or uncertainty of crops, the liability to losses—set the figures beside each other, and see which has paid the best per cent. of net profit, these three orchards or the three most successful farms in your county during the same period of years. And remember, that during the time these orchards are accounted for has occurred the longest series of the worst years for the business ever known in Missouri. The great three years' drought that scourged so nearly the whole country

from the Rocky Mountains to the Hudson for 1885-86 and '87. The literal cooking of the pollen by the hot gale of last of April and 1st of May, 1887, and some years when the Codling moth destroyed one-half the value of the crop.

DO NOT EXPECT

any one variety to do equally well everywhere in Missouri. The varieties of apples already proven inside our state are very many. The varieties known to be quite profitable in given places for the commercial orchard numbers a dozen, or a score. A goodly number of seedlings and of new apples that look well, and of which we have good reports, have been shown at our state meetings.

The distinct kinds of your soils are many, and the mixtures and blendings of these have endless variations. The Loess, the Upper Coal Measures, can each be found inside our bounds in perfection.

The deposit that filled up the Great Lake, and the red lands, when the outlying smaller lakes left their mud. Hill-top, slope, valley, on its surface lies the varied material that is to give Missouri a greater range of successful varieties than any other state.

Now, we know something as to the soil or the exposure on which to plant some particular varieties—there is much to learn.

A few weeks ago I was among the splendid orchards of Mr. Durand, of Bates county. Little wonder that the Jonathan is his pet, growing from the deep, rich, black soil of a second bottom near the Osage river. But do not expect to get such results if you plant the Jonathan on poor, or washed land, or on the flint hills, where lead and zinc are the staple products.

CODLING MOTH, AND PESTS.

At our State Society meeting, held at Lexington, December, 1886, Mr. M. G. Condon, of Clinton, Henry county, Missouri, by letter to our Secretary, Mr. Goodman, and read before the meeting, made the Society, and so the public, a present of his invention of wire-cloth screening—to be placed around young trees to protect them from rabbits, etc. After two years careful experimenting here, we are, at least, very hopeful that it is an entire protection against rabbits, borers, and sun-scald; whatever sun-scald may be.

Dr. Goslin, of Oregon, Holt county, at our winter meeting for 1887, held at Boonville, gave a *prescription* for dissolving white arsenic in

water in which a little alkali had already been dissolved. See Annual Report of the Missouri State Horticultural Society for 1887, page 232. The Dr.'s prescription, applied from pumps costing \$7.50 each, was tried this year in our county, by several men, on large orchards, and the success has been so marked that we, of Holt, have about lost fear of the Codling Moth. The same *medicine* applied from the same machine will easily and surely dispose of the Canker Worm, and probably of some other pests.

If events shall finally and fully prove that we have learned now so to fix our trees as to be secure from rabbits, borers, and from the bad effects of the direct rays of the sun, winter and summer, by the simple device of wire-cloth, and that, too, at a cost of three to five cents per tree, then we have made, not only a *step*, but a long *run*, on the road that leads to successful apple raising.

If spraying with a cent's worth of potash and arsenic to each bearing tree is to rid us of the Codling Moth, as it clearly did when it was tried here in the year 1887, it looks as if the time was at hand when we might shout *victory*, and advance with confidence to the final rout of other pests.

I ask the attention of the members of our own, and of other State Societies, of the public, and of Legislators, to the fact that Mr. Condon's invention for the use of wire-cloth, and Dr. Goslin's method of making a proper solution of arsenic, both world wide as to their importance, were given to the world through the medium of the Missouri State Horticultural Society.

It pays now. When the seasons shall have returned to their proper balance, when the insects that vex the trees and mar the fruit shall be under control, and when our only means of transportation, the railroads, shall be willing to live and let live, then it *will* pay to raise apples in Missouri for the markets, not only of the United States, but of the world. *One half is in producing the apples—the other half is in marketing them.*

THURSDAY, DECEMBER 6TH, 2 P. M.

DISCUSSION ON ORCHARDS.

Major F. Holsinger, of Kansas, referred to Dr. Ensign's paper, and intimated that when planting an orchard, he looked for good healthy trees, with good tops; that if the top was all right, the roots soon would be, and advised the planter to keep his knife in his pocket, not to cut off any of the top because some of the roots had been cut off in taking up.

Mr. Henry—My friend thought it was not very necessary to look after the roots. I think he is wrong. I always select trees with good roots, even though the stem may not be such as I desire. In time I can make it such, if I have good roots to insure a vigorous growth. The top and the root should be in proportion, as in nature, and as we must cut the roots more or less in digging the tree, the tops should be correspondingly shortened. Before planting, I would smooth off the mutilated ends of the roots, cutting from below upward.

Mr. Holsinger—If you should get your feet cut off, would it be necessary to cut off your head?

Mr. Henry—The case is not analagous. The roots are the life of the tree.

VARIETIES.

Mr. Holman—I will give the opinion of a friend who could not attend this meeting—*Mr. Scholton*. He has had fifteen years experience, and would confine his planting for commercial purposes to three varieties, Ben. Davis, Willow Twig and Jonathan. He will plant only these three.

Mr. Liston—On timber land, sandstone timber, the Rome Beauty is not worth planting; McAfee in my orchard, on sandstone prairie, is not worth having. Jonathan does better on timber land, but it does not pay on sandstone prairie. One of the best soils for orchards is red or mulato timber land. Most varieties will do well on such land, but many will not do well on prairie land.

Mr. Murray—We are very much inclined to go from one extreme to the other. About twenty years ago everybody was planting Early Harvest. They got two dollars per bushel for them in the orchard; but this did not last long. The Early business was overdone and a reaction took place. Now there is a scarcity of good summer and fall apples in the market. The fruit commission men of Omaha say that good early apples and good fall apples are paying well. Early Harvest netted me fifty cents per bushel in Omaha this past season. Eastern growers can not compete with us as the early fruit will not stand such long shipments. I found in Omaha last week that the market was overstocked with apples from Missouri and Michigan and New York. They are all ripe, and every man wants to sell, but they would buy good, sound, solid apples that would keep. I find that the Winesap is growing in favor. It keeps well. Grimes' Golden is also growing in favor.

Mr. Goodman—I wish to state one fact that was given me by a very extensive fruit grower of Southern Illinois, at St. Louis. They grow Winesap for the Chicago market, and ship them there, and they are sold before other winter varieties are in the market. They send Ben. Davis to the St. Louis market before we hardly think of gathering ours. We should grow the varieties that are suited to the markets to which we send them.

Mr. Holman—The Jonathan ripens early and can go to any market. It always sells. I saw a man in St. Louis who wished to know why we did not grow more Jonathans.

Mr. Durand—I have seen the Jonathan sell for \$4.00 per barrel, when other apples were worth from \$2.00 to \$2.50. I never have found any trouble in selling my Jonathans at just as good prices as any other apple, and I generally have a good crop of them in proportion to other varieties.

Mr. Faith—I expect to plant 1600 more apple trees next spring. I will plant Jonathan, Ben Davis and Little Romanite.

Mr. Henry—In the north, in Minneapolis, the Jonathan sold for one dollar per barrel more than any other kind in the market. The Missouri Jonathan was better than that of northern Illinois or any other place. I think, the Jonathan is a safe kind to plant.

Mr. Holman—We should not leave out the Grimes; it is a fine apple; I cannot keep it, we eat them up. They sell higher than any other kind but the Jonathan; it is earlier than the Jonathan.

Mr. Speer—The Jonathan is always in demand, in the South as well as the North. The Willow Twig is coming to the front very fast with us. In my part of Bates County they pay better than any other variety.

Mr. Russell—I would like to know something of the Lansingburg. Some keep it till August in a common cellar.

Mr. Gano—That is all: they can't be sold at any time; there is nothing in the Lansingburg.

Mr. Durand—How is the Grimes succeeding? It trunk blights with me very badly. If the tree fails, it will not be profitable.

Mr. Holman—It will not do well with wet feet, but on dry land it is quite at home. Our trees are healthy and look well.

Mr. Liston—In the last few years I have lost nearly two-thirds of my Grimes on dry land.

Dr. Ensign—I saw the original Grimes near Cleveland, Ohio. It is short-lived there; but some, grafted on natural seedlings about four feet high, are healthy, though on wet land.

Mr. Benedict—The Missouri Pippin is doing very well.

Mr. Durand—I have only four Missouri Pippin; they have always done well with me.

Mr. Evans—The Gano is identical with the Ben Davis in every respect except color.

CULTIVATION.

Mr. Murray—I am in favor of cultivating the surface of orchards not too deep; and every four or five years plow deeper, cutting the roots, thus inducing the growth of new feeding roots. Constant, clean cultivation saves the moisture, which is very important in this land of dry summers. It will pay. I have netted not less than an average of sixty-four dollars per acre per year since my orchard began to bear.

Mr. Holsinger—I think, corn is better in a young orchard than root crops; it shades the trunks of the trees.

PRUNING.

Mr. Faith—Pruning is of more importance to the fruit-grower than any other subject. We prune too much here in the south-west part of the state. Our soil makes such a growth and form of head that don't require much pruning. If I prune for growth I prune in the winter when the tree is asleep; if I prune for fruit I wait till the tree expands the full size of the leaves. When we strike at the life of the tree by removing its leaves or lungs that makes it grow fruit buds for the next year; no

two trees are alike in growth, hence no two require the same kind and amount of pruning. Upright growers should be thinned out and some of the drooping branches should be removed from spreading or straggling growers.

Mr. Murray—I would leave some water sprouts on trees whose branches have been bent over with heavy loads of fruit; they will renew the tree. This is especially applicable to the Winesap.

Mr. Laughlin—I think pruning should be a preventive measure to keep trees in the right shape, so you will not have to remove large branches when the tree gets older. I would prune only the last of May or first of June, just as the tree is making the most rapid growth of the season. Wounds made at this time will soon heal over, and you will have long-lived trees.

THINNING FRUIT.

Mr. Speer—I have been studying about it and I think it will pay. If any person has had any experience as to how expensive it is, let us have it.

Prof. Clark.—In the east I spent twenty-one days work thinning a crop of peaches that made 800 bushels; every peach sold, and we got more bushels than if we had left them all on the trees. We got \$3.50 a bushel instead of \$1.50.

If plums are thinned so as not to touch, they will not rot, and the fruit will be finer. It pays to thin fruit every time, and apples in the bargain.

MARKETING.

Mr. Nelson.—I won't take back anything I said in my paper. I think the apples should be packed into the barrels under the trees in the orchard where they grew. Some varieties are so tender you cannot move them in any other way.

Mr. Henry.—In my opinion the most important thing about marketing is honesty on the part of the man that packs the fruit. The man that puts in two layers of good apples and then fills up the barrels with trash is the man who breaks down the market. There ought to be an effort made to compel every man to put his name upon every barrel he packs. Honesty in packing fruit would double the market in the northwest.

Mr. Murray.—I think we ought to use clean, new, full-size, uniform, standard packages. Apples should be packed in what are called

eleven peck barrels, though they hold, when filled, 150 pounds of Ben Davis and 165 pounds of Winesap.

Mr. Gilbert—I have sold hand-picked, carefully packed fruit for \$3.00 per barrel, when other fruit could be bought from \$1.50 to \$1.20.

Mr. Evans—Honest fruit, honestly packed, in honest packages with the grower's name upon it will sell. If a buyer finds that your brand is good, he will look for it. It is like buying a pocket knife, you would not buy a knife on which the maker would not put his name.

Mr. Speer—I once bought a basket of peaches that were very nice on top, but when I took off the first layer, I found that a large part of the others were contemptible little apples. I put my name upon every package I send out.

Mr. Holsinger—I am proud to know that I am in a crowd of honest men.

Mr. Evans—Excuse me, Major, we will congratulate you that you have just got over the line. [Laughter.]

Mr. Holsinger—When I pack fruit I am like your merchants here in Nevada, I put the best in front. Somehow or other the big fruit gets on top.

Mr. Bell—I find that, as a dealer and shipper, I am a target for both the producer and the consumer. The one thinks I cull too much and the other thinks I don't cull enough. What am I to do? In Missouri it is a matter of impossibility to send your barrels into the orchard and let the producer fill them under the tree. Our friend, Mr. Henry, struck the keynote when he said that honesty was the thing most needed in packing and marketing our fruits. This thing of everybody packing and shipping is what breaks down the market. I find, in Missouri, that the only way I can handle fruit is to have it loaded into large wagons and brought to my packing stations, where I pack it under my own supervision, or that of some man that I can trust. The average farmer does not even know the different varieties, unless it is the Ben Davis; perhaps most of them know it. I have packed over 16,000 barrels this season and I have only saved myself by seeing the apples and supervising the packing myself. In the present state of things it is impossible to take the fruit just as the farmer picks it, unless the buyer has a great deal of money to lose. Some of them put almost everything into the barrel except the tree. We need honest packing to begin with, full measure and to make two grades of our apples. When shipping long distances you must have only the very best fruit, and you must certainly have honest packing.

Mr. Durand—I gather my apples in bushel boxes. I fix the wagon so that it will hold thirty bushels without putting one box upon another. These we haul to the barn or packing house. These boxes cost me thirteen cents each.

Mr. Bell—I will try the boxes hereafter. I will also buy apples by weight. The farmer can unload the boxes quickly, take empty boxes back.

Mr. Ames—The question of marketing also involves the question of transportation: What is the best market and how to reach it is also a very important question. Our position or latitude enables us to reach northern markets before our eastern friends can reach them. We must plant more so that we can get the transportation companies to give us better rates.

EVAPORATING FRUIT.

BY J. B. DURAND, PRAIRIE CITY.

Mr. President:

There is one subject connected with fruit-growing which I consider of much importance, that has been discussed but very little in the meetings of this and our local societies. I speak of fruit evaporating. I will only consider the subject from a fruit-grower's standpoint, and not as a business within itself. I hold that every fruit-grower, no matter how large or how small, should have an evaporator of sufficient capacity to work up all of his second-class fruit of every kind—apples, peaches, or berries, and sell nothing in a fresh or green state except strictly choice fruit—evaporate everything else. By pursuing this course, you will sometimes realize more from your culls than you will from your choicest fruit. For instance, two years ago, I received for my picked apples 33 cents per bushel and evaporated my culls, which, after count-

ing out cost of evaporating, netted me 40 cents per bushel—7 cents more than my best apples brought me. You may ask why I did not evaporate all. Well, for two reasons:

- 1st. I did not know that I would receive so much for them.
- 2d. If I had known it, my evaporator was not large enough.

Last season I put up a new evaporator and prepared nearly 8,000 pounds of choice fruit and sold most of it at home for 10 cents per pound. One lot I shipped to Colorado brought me 11½ cents after paying freight. None of the fruit worked up would have been marketable in any other way, and would have been mostly wasted, but for the evaporator.

Another advantage in having an evaporator, is that you will have a finer lot of shipping fruit, you can afford to cull closer and will do it, when the culls will bring you very nearly, if not fully as much, thrown out, as they would throw in, and you will therefore have a fruit package of a fancy quality, which will bring you more money. So you not only sell your culls for a good price, but receive more for all your fruit.

In seasons of full crops and dull markets, when prices are demoralized and fruit will bring scarcely enough to pay freight and packing, evaporate all and pack in new, clean packages, either barrels or fifty pound boxes and you can store them away until the market revives. If properly dried and put up, they will keep for any length of time. We are now using some we put up four years ago, and they are just as good as new. Great care should be taken in preparing the fruit for the evaporator, to thoroughly trim off all specked or bruised spots before placing in the evaporator, so that your fruit will have an even look. The price of evaporated fruit is now more per pound than any other farm product, and raspberries and pared peaches are worth more than any other food product from anywhere.

Where there is a market for cider, a good cider mill can be used to good advantage in connection with the evaporator. There are a great many apples that are too small to pare and prepare for the evaporator, and these with the cores and peelings, can be made into cider and thereby save everything. It is not what we make that makes us rich, but what we save; so save all the apples and turn them into money.

With the Eureka parer, a good, active boy can pare and slice from fifty to seventy-five bushels per day; so that preparing the fruit for the evaporator is not the task that it would be with the old style apple parer.

In speaking of using the culls, I do not wish to be understood to mean green, wilty or tough fruit, but fruit that is fully matured and well

ripened, and is first-class in quality; bruises, rotten specks or wormy defects must all be cut off before dried. Nothing will injure the sale of your fruit so much as to use an inferior quality, such as green or wilty fruit that is tough and leathery.

An invitation was sent in for the society to pay the asylum a visit. The invitation by motion of the secretary was accepted with thanks.

At the conclusion of the papers and discussions, the report of the committee on Small Fruits was called for and the following reported:

REPORT ON SMALL FRUITS.

BY J. N. MENIFEE, OREGON.

The small fruit crop in Holt county the past season was fully as good as the outlook reported at the June meeting, and found ready sale at fair prices. And the prospect for the coming crop is good, having a fine growth of plant wood, which goes into winter well matured. Some facts, of practical value, have been gained the past season, especially by our experimenting with new fruits. In strawberries, we found Bubach a wonder, both in size of fruit and productiveness. Gandy's Prize proves a superb late kind; Itasca, worthless; Monmouth, a poor plant, while Hampden, Daisy, Haverland, Bomba, Logan, Warfield No. 2, Townsend's No. 1,001, and Ohio Centenial, are all healthy, vigorous growers, but have not fruited for us yet.

In Raspberries, we have learned that, with all the blowing done, the Carman and Wilborne ripen with the Hopkins, and are no better. The old Blackcap, Souhegan and Hopkins are our standard blacks, and Schaffer the only red worth cultivating.

In Blackberries, we have been greatly disappointed, especially in the Freed and Erie, and somewhat in Western Triumph and Lucretia Dewberry, all having failed in properly maturing a full crop of fruit, while Snyder and Taylor were loaded down. We still hope another year will warrant us in reporting more favorably on them.

An invitation of Cotty College to visit their college at any time, was sent and read before the society. Moved that it be accepted and thanks of the society returned.

PRACTICAL SUGGESTIONS ON SMALL FRUIT.

BY Z. T. RUSSELL, CARTHAGE.

If the word "practical" had been omitted from the subject assigned to me, it would have been easier. It is an easy matter to write line after line and to add page upon page; but to make what you write practical omitting all mere theories and manifestations of "crankiness," is no easy task. However, I shall make the effort and indulge the hope that if I wander away from the subject, or fail in confining my remarks to that which is practical, I may be excused on account of inexperience in composition.

Beginning with the preparation of the soil, I will say that, during eight years' experience, I have never plowed for small fruits of any kind, deeper than about five inches; and in some places not more than three. Plowing to the depth often to twelve inches, and sub-soiling to the depth of twenty inches, as often recommended, may be a very wise and profitable thing to do in some soils, but I have never subsoiled. Most of my soil is full of stumps, and some of it is rocky.

Sub-soiling on such land is simply impossible. I have raised some very fine strawberries on land that was so rocky it could scarcely be plowed at all, certainly not more than two or three inches in depth. Hence I say that deep plowing, however desirable it may be considered, is not absolutely necessary to the growing of strawberries. They naturally prefer new land and on such they will do better, with shallow plowing, than on old land with deep plowing.

CAREFUL PREPARATION OF THE SOIL REQUIRED.

But it must not be inferred from what I have just said that I do not believe in a careful preparation of the soil. On the contrary, I claim that success depends, in a great measure, upon having this well and thoroughly done. With my soil, a clay loam, I consider it desireable to plow the land twice; say late in the fall, and again in the spring; or very early in the spring, and again when ready to set. If plowed in the fall it should not be harrowed, but should be left rough so as to be exposed to the action of the elements as much as possible. In the spring the ground should be plowed and harrowed, the oftener the better, until the top soil is thoroughly pulverized, thus securing that fine, moist and at the same time compact, condition so much appreciated by the strawberry and secured by oft repeated work only.

Before beginning to set I like to

HAVE THE PLANTS ALL READY.

They are prepared by removing all old runners, and leaves, and if late in the spring all fruit stems, and by straightening out the roots and tying in bunches. After this is done the roots are wet, a little dirt is sprinkled on them and they are packed away in a cool shady place, so that the roots can not become dry, but with the leaves exposed to the light. In this condition they will throw out large numbers of little white rootlets along the main roots in two or three days. Now they are ready to set, and if this is well done in soil prepared as directed above they will every one live, no matter how dry the weather or how long continued the drouth.

MY MODE OF SETTING

is, after everything is in readiness, to run a furrow where the row is wanted with a single shovel plow, and before the fresh-turned moist earth can dry the plants are dropped and covered. They are carried in a bucket of water and dropped where wanted by one person, while another follows and covers with a hoe, pressing the soil down firmly about the roots with his feet. In this way there is no chance for the roots to become dry, which would be a great damage, if not entirely fatal to them. This is the best method I have tried when setting largely. It is quite rapid and the plants are sure to live. But there may be better or more rapid ways of setting than this that will give equally as good results. If there is I shall be glad to hear of them.

THE BEST VARIETIES.

Having experimented with many varieties for the last eight years, I have at last settled on the Crescent and the Capt. Jack as the best. Some years other varieties have done equally as well, but on an average for a number of years those named are ahead. They are hardy, healthy and unequalled in the production of good-sized, firm berries of good color. For profit a commercial berry must be selected; one that yields heavily and that can be handled and shipped to distant markets. No large, soft berry will do; and as a rule the extra large berries are not only soft, but most of them are unproductive as well. Firmness I regard of first importance; size only secondary, and quality last. At the East it is said to be different; quality and size being considered of primary importance, but for my own part, I doubt there being much in this cry often heard for better quality. In fact, the acidity of the old Wilson, the Crescent and others of that class, is not, in my opinion, so much of an objection as is sometimes claimed. They come at a time when the system requires and the appetite craves an acid, and in what better form, I ask, can it be obtained than in the luscious, aromatic strawberry? Then let the theorist raise the large-sized, soft, sweet berries, if they will, and educate the public up to the appreciation of good fruit; but let the man who desires a healthy bank account with a good balance on the right side of the ledger, stick to those kinds that can be depended on for a large yield of firm, good-sized, but not large, berries. They are the kinds to plant for the money there is in them, and this, after all, is what most of us are in the business for. I would rather raise Crescents on my place, and sell at any given price, than to raise Sharpless' at ten times that price.

It takes a strawberry about four weeks to ripen after it blooms. When the danger from late spring frosts is considered, it is the opinion of the writer, that earlier sorts than Crescent and Wilson are not desirable, and that late kinds are comparatively unprofitable. I usually get the last berries of the season from Capt. Jack, anyway, and the Crescent lasts nearly as long. They both last, on my place, about six weeks, from the first to the last picking. They cover the whole strawberry season completely and well. The Cumberland Triumph has few equals for home use, but it is not a commercial berry. It is too soft and lacks color.

WE WANT BETTER KINDS.

Notwithstanding the Crescent and the Capt. Jack have done so well, they are by no means perfect. We still look for something better. But for their superiors, we must look to the newer, untried varieties. Of these the most promising that I know of are Warfield's No. 2, and Speece's Perfection. The former has not yet fruited in this country, but has made a very satisfactory growth this summer, and will fruit the coming season. The plant appears to be very vigorous, but of rather slender growth, much like the Crescent, and entirely healthy, so far. It makes about twenty-five per cent. more plants under similar circumstances than the Crescent. Its conduct next year will be watched with a great deal of interest.

Of Mr. Speece's seedling, I might say a great deal, but since he has prepared a paper on the subject of his seedlings, I deem it unwise and unnecessary. But I wish to add that, from what I have seen of it, the Perfection is enormously productive of very large, fine, well-shapen, bright scarlet berries. It being originated here in the Southwest, is a strong point in its favor. I consider it very promising.

In conclusion, Mr. President, allow me to add a few words concerning

EARLIER AND LATER VARIETIES.

Since I began to read horticultural literature, ten years ago, a number of "earlier" and some "later" varieties have been introduced; each one, in turn, "a week to ten days" earlier or later than the then known earliest or latest variety, as the case may be. Let me illustrate: the Wilson is early, the Kentucky, late. The Great Early is introduced, and said to be ten days earlier than the Wilson. Next we have the Earlier, a week or ten days earlier than the Great Early, and this is followed by the Earliest, a week or two earlier than the Earlier, and it in turn by the Very Earliest, and so on. On the other hand, the Late, which was ten days later than the Kentucky, was followed by the Later, this by the Latest, and it in turn by the Very Latest, each one, in turn, a week or ten days later than its predecessor. It reminds me of a paragraph which I read recently, anent the anouncement by one of the railroads, that they had dropped thirty miles of distance between Kansas City and Chicago, whereupon the Paragrapher asks, "How long will it take, at that rate, for Kansas to get over into New England?"

Now, with the great number of new early and late varieties being introduced, how long, I ask, will it be until the Very Earliest and the Very Latest strawberries will come together with their ripening seasons in the middle of the winter? But, in view of all this, how much earlier do we get berries now than we did ten years ago, or how much later is the "Jumbo" than the Cumberland Triumph?

PROFITS OF SMALL FRUITS AND HOW TO GET THEM.

J. H. LOGAN, NEVADA.

Mr. President and Members of our Horticultural Society:

As I have been placed on the program for a paper on the profits of small fruits and how to get them, I will at first admit of my inability to prepare a paper that, I think, would interest the members of our society.

The profits of the business is what we are all looking after, for I suppose there are only a few at least who are laboring in the orchard or vineyard merely for pleasure, the first question that generally comes up, when speaking of a business, is: Does it pay?

Now, the profits in any business generally depends upon the ability of the person engaged in it, and, to obtain good profits from small fruits, requires a great deal of tact. I think there are a great many engaged in fruit culture that do not get what really belongs to them when it comes to the marketing of their crop. Now, to give any information relative to the profits of the business, it would first be necessary to make an item of the expense of starting in the business. I will simply give a brief estimate of putting in a five acre tract in strawberries, raspberries and blackberries, presuming that the individual owns the land and performs his own labor in setting the plants. We will start out with strawberries, two acres, 10,000 plants per acre, at a cost of \$2.50 per thousand - \$50 for plants; and two acres in raspberries, 2000 plants per acre, at \$7.50 per 1000 - \$30; and one acre in blackberries, 2000 plants - \$15. Now we have expended for plants \$95; the expense of cultivation the

first season can be performed by one man and team, provided he gives it all his time. As for the expense of labor performed in preparing the ground, setting the plants and cultivation, that can be easily calculated, as it only requires ordinary farm work mixed in with good common sense and an hour's reading each day of some good horticultural book or paper. I will say that a fair crop of strawberries, with good culture on land well prepared to begin with, is about 5000 quarts per acre or 200 crates of twenty-four quarts each, which will generally bring two dollars per crate on an average. Now we have from two acres 400 crates of strawberries, for our first crop, \$800—and from two acres of raspberries, which we will estimate at one-third of a crop from the first year's growth, or about thirty crates per acre, twenty-four quarts each, worth \$2.50 per crate, presuming that a large part of the crop are early berries—\$150. Now we have \$950 for our gross proceeds, the expense of picking, paying for boxes and crates will cost about \$200, add ten per cent commission for selling, making ninety-five dollars. We have a total expense of \$295 from the crop of four acres, which leaves a balance of \$655 to pay the expenses of putting in the crop, and first year's cultivation; will not estimate anything from the one acre of blackberries until the third year after setting. Now, aside from the above estimate quite a revenue may be obtained from the sale of plants. This estimate is made up on the presumption that we are situated near a good market, and that the ground is well prepared and thoroughly cultivated to begin with; no time to be allowed for destroying dry goods boxes with a jack knife.

I have in my mind a gentleman in our own locality that purchased a ten acre tract a few years since and started in the small fruit business, and his experience was something like that of our Hon. Mr. Kimball's experience in horticulture, as related by himself in his address of welcome before our Society.

Now from the second crop we should be able to obtain about three times as much from the raspberry crop as from the first season, and we can safely estimate at least \$150 from the one acre of blackberries and about the same results from the strawberries. In addition to the above I will submit a brief report of our sales the past season:

From 5 1-2 acres of strawberries, all grown in a young orchard, we sold 700 crates at the average price of \$2.00 per crate.....	\$1,400
And from 7 acres of raspberries, set out two and three years, and 3 1-2 acres, one year old, 750 crates which brought an average price of \$2.60 per crate	\$1,950
Also sold about \$50 worth at retail at.....	50
Our total sales from berries amounted to.....	\$3,400
Aside from this we sold \$150 worth of Wild Goose plums from the same ground.....	150
Giving us as gross sales.....	\$3,550
We also have sold strawberry and raspberry plants to the amount of \$300	300
	\$3,850
Our expense in round numbers for box and crate material, picking and commission for selling.....	950
Leaving a balance.....	\$2,900

This \$2,900 has been realized from less than 17 acres of land, with a fine, thrifty young orchard growing on the same land. We had obtained the above results by persistent work. We kept one team hauling barnyard manure, continually, from the city and scattered broadcast over the land, and gave our berries good culture. Now we can readily decide, I think, that small fruit culture will pay, but in order to obtain a fair price for our fruit we must first select a good variety, and in picking our berries it will pay to assort them, especially if we have many small berries ; it does not pay to ship inferior berries ; do not allow the fruit to get too ripe to ship ; then look out for the commission men, for you will find plenty of them willing to exchange their experience for your labor and capital ; require them to report the proceeds from consignments promptly ; if you don't hear from them within a day or two after receiving goods, you had better begin to look after them.

Now this paper has been hastily prepared, having taken no time for it until to-day, being quite unwell for several days and a great deal to do that has taken up all my time, but I hope something may be gleaned from it that will encourage those who may have a desire to enter the field of horticulture. We have the soil and climate to produce great results if we go into it with a determination to succeed. I am fully con-

vinced from years' experience in the cultivation of small fruits in Southwest Missouri that there is no occupation that will repay the tiller of the soil as quick and so profitably as small fruit. We want to produce it in larger quantities and get better methods and cheaper rates in transportation.

DISCUSSION.

Mr. Faith—My experience is that the soil of this part of the state is very productive, but that the taste of the people requires more cultivation than the berries.

Mr. Espenlaub—In reply to the question as to how raspberries do when planted in check rows, so that they can be cultivated both ways, I will say that we find it better to plant in hedge rows as the wind blows them over when planted in hills.

Mr. Logan—The Crescent and the Downing are our main reliance for strawberries, and the Souhegan and the Gregg for raspberries.

L. A. Goodman, Secretary Missouri State Horticultural Society:

Knowing now that I cannot be with you at Nevada, I will send you my report.

STRAWBERRIES.

All my old beds burned up in 1887 except Bubach and Jessie, which were set out the spring before. Both of these behaved well, and bid fair to hold a place in the front ranks.

RASPBERRIES.

Centennial, Hopkins and Gregg, for black; Turner and Schaffer, for red; do best with me, and never fail to yield a fair crop.

BLACKBERRIES.

Snyder, Stone's Hardy, Taylor and Western Triumph are all No. 1 blackberries with me.

CURRANTS AND GOOSEBERRIES

Almost a total failure, I think, from the drought last summer, 1887.

CHERRIES.

The best crop of fruit in ten years, conspicuous among which were Gov. Wood, May Duke, Rein Hortense, and Napoleon.

PLUMS.

Marianna, Wild Goose, Deep Creek, Golden Beauty, DeSoto and Damsons all matured their fruit. Deep Creek is the best flavored of any native I have tasted yet. DeSoto is very fine also.

Golden Beauty is quite late, very handsome, but must be well thinned or they will be small, as it sets about four times as many as it should carry through; the curculio don't seem to affect them. In Marianna I am disappointed; not good enough, and rots on the tree too much.

GRAPES

Were a pretty fair crop, although the rot at one time threatened to make a clean sweep of them. Jewel, the earliest and a superb one, dried in the sacks and make good raisins.

Early Victor, Moore's Early and Worden are all good and early.

Moore's Diamond, among the earliest, was again best of all the white ones.

Empire State was splendid, and the quality superior to what I expected.

Pocklington was very fine and ripened quite late.

Triumph was splendid in appearance, but the foliage suffered somewhat and prevented the fruit from ripening perfect.

Brighton was a show, and the fruit of extra fine quality. 'Tis a great pity that this grape is not hardy.

Niagara, I did not get a ripe berry and did not put on the sacks in time and they all rotted.

The fact is we cannot grow grapes here with any certainty unless we do sack them, and that must be done in time. As soon as the fruit is set is the safest.

PERSIMMONS.

The Kansas seedless, which is, however, not entirely free from seed, but has fewer than any other that I am acquainted with, is the largest I have, and quality of the best. The tree is very ornamental also.

St. Thomas, Ruby, Josephine and Early Golden all bore a crop, all good but St. Thomas and Ruby. Trees still full of fruit.

Having been summoned as a witness on a murder trial, it comes just at the time that will prevent me from attending our own state meeting as also the Illinois.

These infamous law suits are an intolerable nuisance.

NEW STRAWBERRIES.

HENRY SCHNELL, GLASGOW.

I planted my first strawberries here at Glasgow, Missouri, in the spring of 1882, and since that time have tried many of the new candidates, as they appeared with their glowing descriptions. Though, strange to say, I have found none to take the places of the old standard varieties that I started with, and I still depend on these for the bulk of the crop, *and they are* Crescent Seedling, Windsor Chief, Capt. Jack, Harts' Minnesota, Mt. Vernon, Chas. Downing, Cumberland, and Sharpless, the first four named occupying three-fourths of the ground. Having failed so far in getting a new one to supersede these older sorts, I do not wish to be understood that I lay any blame on the originators or disseminators of these new berries. We all know what a change of soil and climate, etc., brings about, and while I may grow a seedling that will excel anything I now have growing, if it be taken perhaps only one-half mile away in a different soil, it may prove entirely worthless. I remember during the berry season of 1878, while visiting friend

Sam. Miller, at Bluffton, he had growing in a sandy soil on the bank of the Missouri river a few plants of the Martha, at that time a new one, and among thirty or forty varieties, I thought it the finest one among them; large, luxuriant foliage, with fruit stems ten to twelve inches high, standing erect, loaded with fine large berries.

The following spring I got some of the plants, and they were planted in a heavy clay loam. The next year when they fruited, I was surprised to have a low spreading weakly plant, and the berries had almost to be dug out of the ground, or just the opposite to what it was on friend Millers' sandy soil, and thus it is that we are so often disappointed with our new "two dollars per dozen strawberries." Though I am still buying and trying them, and I presume most of the berry growers are also, and so we should, and when a good one comes around we get the benefit of it. Every grower must experiment for himself to find what sorts succeed best on his soil, and a few plants are sufficient for this purpose. It would be folly for anyone to plant largely of any new variety, paying perhaps twenty, thirty or even fifty dollars per thousand for them, and going entirely on others' say so. I have often said and still say it, that every berry-grower should grow seedlings of his own until he gets a good one. Take any of the new ones sent out during the past ten years and go to the originators or disseminators' grounds and there you can see them in all their glory, because the soil and clime suits them.

There is nothing in horticulture more pleasant or interesting than the growing of new seedlings. I have now a row of about one hundred and fifty seedling strawberries that will fruit next year. Just think of it, to have that many or more plants to fruit and no two of them precisely alike. They already differ in growth, in color of foliage, shape of leaves, etc. When in bloom some will be pistillate, others hermaphrodite. Some will ripen their fruit early, some late; some large, some small, sweet and sour; from a pale red to a dark crimson in color, etc. What is more interesting? Some will say we have about attained perfection in the strawberry, but I find there is still room for improvement. My ideal strawberry would be of the following type: first, size of Sharpless; second, flavor of the wild strawberry; third, perfect shape of Cumberland; fourth, firmness and shipping qualities of the Wilson; fifth, vigor, hardiness and productiveness of the Crescent, and last but not least, to succeed everywhere. I do not think the good Lord ever intends for us to get such a berry, but we can get nearer perfection than we are now. It is with the strawberry as it is with other fruits and also the human family.

Everyone has some fault or weak point. Among the long list of berries, we have to-day very few that will score over one-half the points mentioned above. When we have size, vigor and quality, we lack productiveness and hardiness, or *vice versa*. For fear that my paper becomes too long and tiresome, I shall not go over the entire list and shall just mention those that have done well with me and I can of course only speak of their behavior here, in a sandy loam soil.

Manchester is the only one I planted the past spring, of all the new ones, excepting those fruited for the first time this season, I shall plant it in place of the Cumberland. It is up to it in size and shape, resembling it in color, is much firmer and twice as productive. Jersey Queen, Jewell, Cornelia and Crawford's No. 6, are all fine, large berries, but I do not think enough of either one, to plant them largely. All need high cultivation to succeed well. The past season they were as fine as any one could wish; but last year, they were almost an entire failure. Jersey Queen seems to do better as the beds get older, but can not stand drouth well, and the other three the same. Parry was a failure; Belmont, ditto; Lovett's much-praised Monmouth, lacks vigor—don't hold its size—a few large berries on the start and the rest worthless.

May King, claimed to be superior to the Crescent, does not near come up to it, but is of good flavor and early as Crescent, and may become valuable as a fertilizer for the Crescent. Jessie did not come up to expectations, and will have to stand another year's test before planting it largely. In vigor of plant, and standing drouth, it is all that can be desired.

Bubach's No. 5—this berry, I think, has come to stay. In plant and foliage, it stands without a ~~bad~~, robust and healthy. Fruit very large, holding its size well to the last, somewhat irregular in shape. Very productive. Season medium to late. Its defects are irregular in shape, lacking some in firmness and quality, but none of these will keep it from becoming popular. From what I have seen of it, I shall plant it largely. Of the later ones, that I have not fruited yet, and for which there seems to be a future, are Warfield's No. 2, from Illinois, Haverland Seedling, from Ohio and Hoffman's, from the south. All of these are taking the lead in their respective locations.

In conclusion, I will say that I have several new ones of my own and after another year's trial here, if they should come up to their past record, I shall be glad to give such members who desire them, some for trial. I think I have one a week earlier than the Crescent; resembling

it in growth and plant it to it in size, and better quality, but need another year's test.

The following was then read:

SOME SEEDLING STRAWBERRIES.

BY B. W. SPEECE, CARTHAGE, MO.

One of the best and most prolific strawberries in the world, is Speece's Perfection. This berry was originated by B. W. Speece, in the city of Carthage, Mo., from seeds taken from three varieties, namely: Crescent, Glendale and Sharpless. I judge it to be from a Crescent seed, as its habits and foliage favor that variety, except the foliage is a lighter color; but it has been well fertilized with the Glendale, Sharpless, and other varieties that were near by. The plant is very hardy, a strong grower and makes about as many runners as the Crescent; makes no runners scarcely till fruiting is over. The mother plant from the seed, when less than a year old had on thirteen fruit stems and eighty-two berries; there were six of the berries ripe, the balance ranging from full grown to just out of bloom. Mr. Wiggins was so excited and surprised that he slapped me on the shoulder and said: "Oh! Bowen, you have your fortune in that berry," and he insisted that I should cut the stems and send them to Samuel Miller. I did so and notified him by letter but for some cause he did not get them until they were all spoiled. It being a very dry summer, I loosened the ground and gave it water a few times, it made runners lively, and in August I set out two hundred and thirty-seven plants from it. It still continues dry, some of the plants made a few runners; the next spring I set out from them one hundred and fifty more plants; when warm weather came they began to stand out wonderfully, and sent up a great many fruit stems, one plant had on one hundred and fifty-four berries, which if they had been all ripe, it would have made over four quarts of fruit. The other plants were just

as full according to size of plants. Those berries were sold in the home market; they sold for double and some select ones for three times what common berries sold for. I think its shipping qualities better than the Crescent. When ripe its color is a dark scarlet, its shape beautiful and its flavor the very best. This last spring I had a patch 125x150 feet; in the patch were five rows of late set plants, and three rows of various seedling that did not yield much. I picked off the patch 145 crates, —we used during the season about five crates in the family. My net profit was three hundred and sixty-seven dollars and eighty-six cents. (I will have no more plants for sale before next August.) The Beauty is a very promising berry, also the Carthage Queen, very prolific and very large—the largest berry I ever saw.

The Royal Gem is a very fine berry, large stamen bloom; will make a good fertilizer. The Comet is my old stand-by for a fertilizer, and is very prolific. I have a number of others not fully tested. (Notice will be given in due time when they will be on the market.)

THURSDAY, DECEMBER 6TH, 7 P. M.

Society met and order was called, after the people of Nevada and the members had spent some time in examining the fruits on the tables. This part of the program is a very pleasant and instructive one, because it gives people an opportunity to examine the fruits, and compare them, to learn the names of many varieties, and to decide on what to plant.

The exercises of the evening were opened with a piano duet by Misses Maud Graves and Edna Smith, followed by an invocation pronounced by Elder E. B. Cade.

Boyd Graves then sang a solo, after which Miss Jessie Holloway, of Butler read a well written paper on the care of flowers, which was heard with marked evidences of appreciation.

Miss Trix Blanton next sang one of her charming solos, for which she was heartily encored.

ESSAY.

BY MISS JESSIE HOLLOWAY, BUTLER, MO.

The faculties of the mind are three in number, Intellect, Sensibility and Will. The recognition of the beautiful elevates the mind and refines the taste. This is an intellectual faculty. The taste must be cultivated and refined. This may be done by close observation and the study of the beauties that surround us. The person uncultured and unused to the beautiful, can no more judge correctly in a matter of taste than one unused to size and shape can form correct decisions on *these* subjects.

Beauty is objective only; we may admire an object for its particular beauty; the object may be appropriated, but the beauty cannot.

We behold the sun as it is sinking behind the golden clouds, reflecting its streaks of soft yellow light on the blue canopy of heaven, we feel awe-stricken, as we seem to stand in the presence of a supreme being. Looking on the picture so beautifully painted before us, we exclaim: How beautiful! How grand! The soul says it, the lips, perhaps, utter it; if they do not, it is a mental affirmation.

In our every-day life, when the business cares weigh heavily on our mind, what a pleasure, what a relief to step out and inhale the fresh, fragrant air and behold the beauties of nature. The little birds are caroling their praises to their Creator from the graceful tree tops. The flowers, that have been our tender care, seem to smile to us as they nestle their modest heads among the green leaves.

We view the landscape, with its level valleys, bordered with the dark green foliage of the forest; the green sward, dotted with bright wild flowers. We say, within ourselves, it is indeed beautiful.

There are beauties all over this grand old world of ours, which the ever searching, ever inquiring eye of mankind have not found. Deep down in the bed of the rolling ocean are many beauties, no doubt, which will never be found; and within the bosom of mother earth, are beauti-

ful gems, of great value, some of which have been brought to our view, and, perhaps, there are others that may never be seen by the eye of man. We may not be situated to view the landscape, or possess the priceless gems, but we *may* possess objects of more comfort and more real beauty to us. These are the beautiful flowers which God has placed around us.

They are appropriated in every stage of life, from our first coming into existence to our exit from this world. They are used to cheer the room of the sufferer as he lies tossing his aching head upon his pillow.

What a comfort to him to have a bunch of flowers placed in his room by the hand of a kind, loving, friend. They cause him to forget for a time his suffering, and think of the one who so kindly remembered him and of the outer world.

We strew the paths of the newly wedded pair with flowers as a token of emblem of our wishes and desires that their path through life may be ever strewn with flowers, and that trouble and sorrow may escape them.

We place on the coffin-lid and grave of those we love the tender flowers as a token of our love for them.

We might enumerate other instances where flowers are used, but it would be consuming time. We all see these instances nearly every day so 'tis no need to mention them.

Anyone, no matter to what state they have fallen, on beholding a beautiful, attractive object cannot keep from admiring it. The sight of it will no doubt call to memory days long flown. We no doubt have met persons who have wandered away from home and native land, when they see a happy household, or are asked about their childhood days, will tell of a dear old spot perhaps miles away which was once their home. There they toiled day after day on the old homestead, planting a tree here, there, yonder, that they may have fruit in years to come or planting the flowers whose blossoms rival in beauty of the rainbow color—making the old home happy, cheerful and attractive. He will paint to us the cottage home where the bright sun shone smilingly upon it; where happiness and joy ever reigned; 'twas there he played in the shade of some broad-spreading tree with his schoolmates and was happy. He never grows weary talking of the beauties of the old home, and holds the home of his childhood days sacred in his heart.

Everyone may have flowers of some variety on their lawns. They add to the beauty of the home, and they speak of the culture and happiness of the inmates.

The way to make our homes happy, is to make them beautiful and attractive—of course not to go beyond the means at command. Nei-

ther intelligence nor refinement are found in the home with bare walls and floors where no books, papers and flowers are to be found. A day's or year's work spent in the cultivation of flowers or trees, are not lost. They not only afford us pleasure, but those around us "He is most lost who leaves as his bequest an added beauty to the world."

We do not intend to slight the window garden by any means. These are of most use in making home cheerful. When the trees are stripped of their green coats, and the ground is white with the driven snow, 'tis then that all nature seems to be dead. How could we do without them? How pretty they are blooming in our window. They revive and cheer us, and 'tis with great pleasure we await the spring which brings life to even the smallest plants, causing the tiny brown buds to burst open. Then the green leaflets appear, after these the lovely blossoms pouring their fragrance into the air foretelling of the delicious fruits that are to follow.

"I could write such a beautiful poem,
About this summer day,
If my pen could catch the beauty,
On every leaf and spray.

And the music all about me,
Of brook, and breeze, and birds,
But the greatest poet living,
Cannot put them into words."

Miss Leotic Smith recited Kate Shelby in charming style. Her rendition of the piece was largely artistic.

REPORT OF SECRETARY L. A. GOODMAN ON OUR MISSOURI FRUIT SHOW.

According to our plan at the June meeting, your secretary visited St. Louis and began arrangements for the fruit display. The busi-

room—60x80—was offered to us, but no promise could be obtained for any amount of money to assist us in the work. Arrangements, however, were made and fruits were sent in to the cold storage companies at St. Louis and Kansas City, who kindly consented to hold our fruits free of charge.

Arrangements were also made with the express companies for carrying our fruits at half rates.

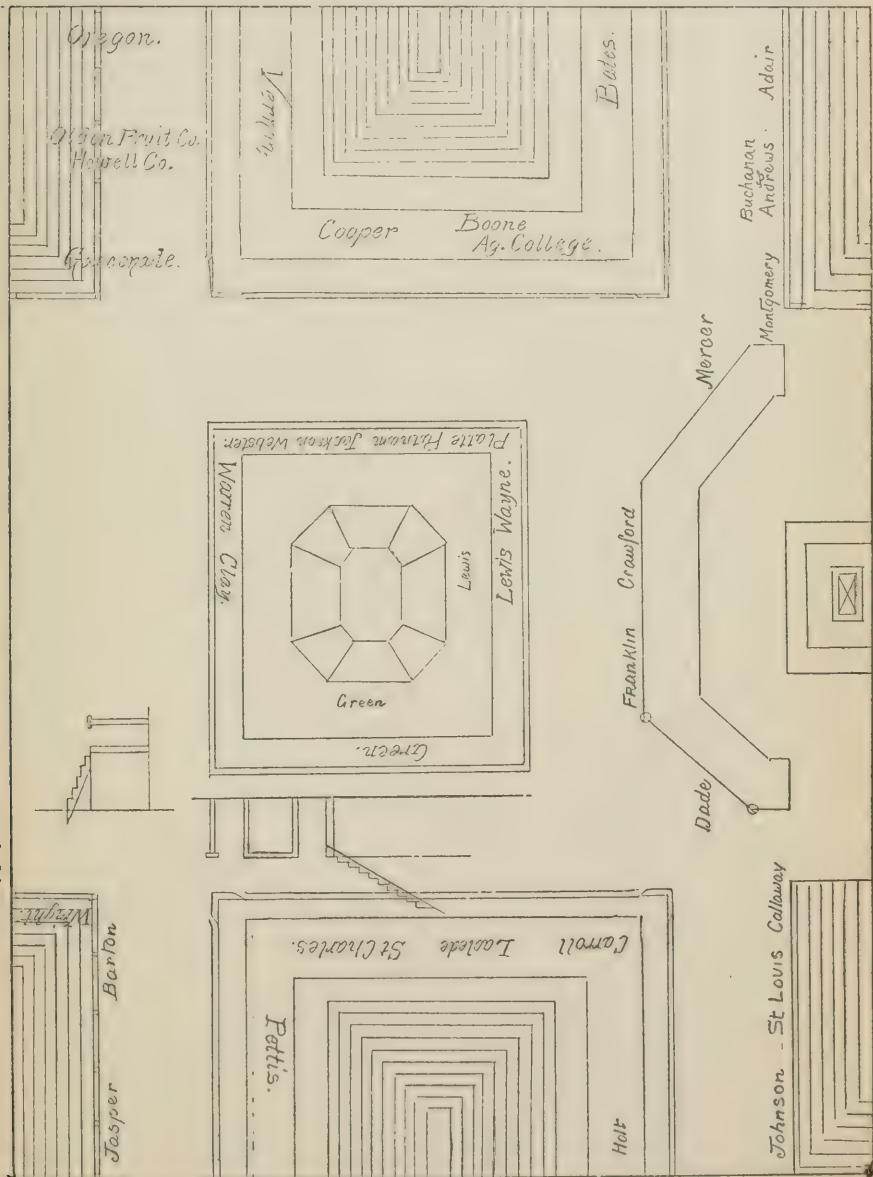
In August the president and myself visited St. Louis again, and succeeded in getting from the Exposition management about \$500 for the defraying of the expenses of the arrangement in the hall, plates for the fruit, covering for the tables and bunting and ornamenting.

With this in hand we completed our plan and had the tables put up as the following cut will show:

MISSOURI FRUIT SHOW.

or GROUND PLAN

HORN ENG.CO.



It was admirably arranged, so as to show to the best advantage, and no one place was better than the other.

The following counties made displays, and there was never seen together more perfect fruit which the society ever showed; there was never together fairer, larger or more beautiful specimens of fruit than that gathered together by our counties in the St. Louis Exposition for the six weeks from September 5 to October 20, 1888:

ADAIR.—42 Apples, 4 Pears, 3 Crab Apples. Sent by Adair County Horticultural Society.

ANDREW.—23 Apples, 6 Pears. Sent from St. Joe Fair by our members.

BATES.—186 Apples, 10 Pears, 40 Grapes. Sent by Bates County Horticultural Society.

BARTON.—48 Apples, 6 Pears, 3 Crab Apples. Sent by C. H. Fink, Lamar.

BOONE.—55 Apples. By State Agricultural College.

BUCHANAN.—49 Apples, 14 Pears, 28 Grapes. By members from St. Joe Fair.

COOPER.—138 Apples, 9 Pears, 3 Crab Apples. By Central Missouri Horticultural Society.

CALLOWAY.—31 Apples, 8 Pears, 2 Grapes, 2 Crab Apples. By R. E. Bailey Fulton and Dr. R. T. Murphy, New Bloomfield.

CRAWFORD.—14 Apples, 4 Pears. By L. G. Grover, N. Jones, and Dan. Curtiss, Cuba.

CLAY.—40 Apples, 14 Pears, 12 Grapes. By Dan. Carpenter, Barry, J. C. Evans, Harlem.

CARROL.—16 Apples. By W. S. Crouch, Carrollton.

DODD.—6 Apples, 2 Peaches, 1 Pear. By W. T. Lyie, Salem.

FRANKLIN.—95 Apples, 4 Peaches, 13 Pears. By J. Bagby & Son, New Haven, J. T. Perkins, Bates, and C. H. English, Sullivan.

GREENE.—180 Apples, 12 Pears, 3 Crab Apples, 2 Quince, 6 Grapes. By Green County Horticultural Society.

GASCONADE.—42 Grapes. By Henry Henze, Herman.

HOWELL.—With Olden Fruit Company.

HOLT.—182 Apples, 12 Pears, 10 Grapes, 5 Plums, 1 Chestnut, 6 Crisp Apples. By Holt County Horticultural Society, Oregon, and Mound City Horticultural Society, Mound City.

JASPER.—107 Apples, 8 Pears, 8 Peaches, 4 Grapes. By Jasper County Horticultural Society.

JOHNSON.—67 Apples, 2 Pears, 4 Grapes. By W. M. Mohler and A. H. Gilkeson, Warrensburg.

JACKSON.—58 Apples, 16 Pears, 12 Grapes. By J. W. White and L. A. Goodman, Westport.

KNOX.—8 Apples. By Peter Dailing, Edina.

LACLEDE.—42 Apples. By A. Nelson, Lebanon.

LEWIS.—10 Apples. By F. Harlan, Canton.

MONTGOMERY.—73 Apples, 8 Pears, 8 Grapes, 2 Crab Apples. By Montgomery County Horticultural Society.

Mound City Horticultural Society.—With Holt County.

MERCER—32 apples; 2 pears. By Mercer County Horticultural Society.

OREGON—42 apples. By S. W. Gilbert, Thayer.

OLDEN FRUIT CO., Olden, Howell County—85 apples; 8 pears; 10 grapes; 27 peaches; 2 quinces; 2 crab apples. By Olden Fruit Co., Olden.

PIKE—6 apples. By W. H. Avis, Clarksville.

PUTNAM—20 apples. By J. T. Scott, St. John.

POLK—4 apples.

PLATTE—47 apples; 24 pears; 2 grapes; 3 crab apples. By J. A. Durkes, Weston.

PETTIS—140 apples; 14 pears; 8 grapes; 6 plums; 4 crab apples; By G. H. Shephard, Lamonte, and F. G. Teubner, Sedalia.

ST. LOUIS—45 apples; 20 pears; 8 peaches; 1 plum; 18 grapes; 2 quinces. H. J. Weber, Gardenville, Gast Wine Co., St. Louis, C. W. Murtfeldt, Kirkwood,

ST. CHARLES—94 apples; 26 peaches; 4 pears; 1 plum; 3 grapes; 2 quince; 4 crab apples. By C. T. Mallinkrodt, St. Charles.

VERNON—176 apples; 12 pears; 4 peaches; 3 plums; 4 grapes, 4 crab apples. By Vernon County Horticultural Society.

WRIGHT—10 peaches. By J. E. Elliott, Cedar Gap.

WAYNE—4 apples; 4 pears. By S. A. Bales, Piedmont.

WARREN—18 apples; 3 pears. By Polster Bros., Wright City.

WEBSTER—17 apples. By T. L. Montgomery, Marshfield.

A. Zeitinger, Zetonia, 17 plates.

We have the following list of

EVERGREENS FURNISHED.

C. T. Mallinkrodt—St. Charles.

A. Ambrose—Nevada.

C. I. Robards—Butler.

Hollaway & Skinner—Butler.

N. F. Murray—Elm Grove.

H. T. Kelsey—St. Joseph.
Stark Bros—Louisiana.
Chas. Patterson—Kirksville.
Colman's Rural World—St. Louis.
Blair & Kaufman—Kansas City.
C. H. Fink—Lamar.

Nearly two hundred evergreens were furnished, planted in pails and used for decorating the hall. All praise is due to our nurserymen for thus liberally donating the ornamental for our use.

In giving this list of names of those who have so nobly assisted in our fruit display, I find it impossible to mention all those in our counties where our local societies are at work, and have given due credit to the societies where there are such. But I believe that I have given the names of all others, and, if there be any omission, it is because of over-sight in the hurry of arrangement.

But whoever has had a part in this great display, can rest assured that our Society fully appreciated all the work which has been done by our members, and that they may be sure they have assisted to show our state fruits as they never were before shown. The result of this will be a great prominence of our fruit interests in the future.

Foremost among our helpers has been *Colman's Rural World*, and what they say about the result, the benefits and the value of such work, as well as the long efforts in bringing this matter to such a satisfactory conclusion, shall be stated in some clippings taken from the *Rural*:

THE MISSOURI FRUIT SHOW.

THE OUTCOME.

We have presented herein a view of the Great Show of Fruit made by the Missouri State Horticultural Society at the Exposition Hall in St. Louis during the past autumn. The engraving gives but a partial

view of the scene presented during the entire of those memorable forty days, of the crowds that entered the hall and fully and critically examined the fruit on exhibition, and much less of the extent, variety, show and quality of the fruit. We can sit back in our chair and shut our eyes and view the scene as we meditate upon its greatness as a whole and the completeness of the many county exhibits, but we cannot, either in cold type describe or by means of an ordinary newspaper illustration reproduce the grand picture. We may see the same thing duplicated here or elsewhere, and have some lingering hopes that such may be our great pleasure, but just here and now are willing to admit that such a scene is one of a lifetime.

In this connection we also have to indicate where the enterprise of the *Rural World* comes in. It may not appear seemly to boast of one's own work; but that "light under the bushel" business comes to us on good authority, and even if it did not, there exists no good reason why after first of all suggesting the effort, and spending weeks of time and traveling thousands of miles a year for three years, to say nothing of valuable columns of space devoted gratuitously to the work we should not mention it, and at the hands of those who come after us claim that we did something in our day and generation to make the merits of this grand state known to the people of the world. On this page is the first article that was written on the subject. It appeared in the RURAL WORLD, Nov. 26th, 1885. It is truer to-day than then.

A MISSOURI FRUIT SHOW.

We believe in advertising our own goods, our own county, our own state. We believe in doing it thoroughly and well, in order that all who ought to know might know, and if they don't want to know we will make them anyhow. Some think ignorance is bliss, we do not ; particularly when the bliss consists in knowing nothing of our grand state and its grander future. There is hardly a crop prominently known to American horticulture which it is desirable to cultivate that cannot be grown in Missouri as abundantly, and with as good or better returns as in any state in the union. The people of other states do not know this, and not knowing do not appreciate it when told. Thousands of men pass through Missouri every year with their wives and families, and the wealth they have acquired, and settle in other and less favored states because they know nothing of this state. They know nothing of our productive lands, of our immense orchards, our wheat and corn, our cattle and sheep, our colleges and schools, our churches, and social and domestic surroundings, and the peace and plenty which permeate our rich and noble state, because it has not been advertised in every paper, at every railroad station, and roadside inn, and on the granite hillside of their own states ; because their country has not been deluged with highly colored pictures and fairly-worded pamphlets describing it as it has of the states and territories beyond ; therefore they go farther and do not fare as well as they would if they knew something which we would tell them of Missouri. Such ignorance is not bliss, neither is it desirable or profitable.

The great St. Louis fair has done much to advertise St. Louis, for many have attended it from a distance, either as exhibitors or sight-seers, who have carried away with them impressions of its magnificence and of the extent of its manufactures and commerce. But whilst these in a measure must convey an idea of the surrounding country and the productiveness of the land to sustain such a city, it does so only in part, and a very small part at that. True, when we make a show of grandly improved stock it conveys an idea of our advanced farming, but the exhibits are open to the world, and the stock one sees is as likely to be from Maine or Kansas as from Missouri. And what is true in that regard of stock is equally true of nearly everything shown at the fair.

We want something that shall show the capacity of our orchards and the quality of our soil as a state; something that shall command the attention and admiration of other states and of other peoples far and near, that shall convince them that Missouri is worthy of attention and deserving of more than a passing notice; that shall impress them in such a way as to compel them to cry for more; then will they discover, what many thousands ought to have known years ago, that this is one of the grandest states in the union, and the one above all others in which they can settle to advantage both to themselves and their children after them.

There are many ways of doing this, and in a council of prominent men there would develop a great variety of opinions as to which is the best. We are just now presenting an idea for the consideration of the members of the State Horticultural Society, and one which they can make work to advantage, viz: a Missouri Fruit Show, a show that shall command at once the attention and the admiration of all, and whose very greatness shall compel its publication far and wide even if it does not bring the people to see it. Such a collection of fruit as we contemplate, could be made from the counties of Missouri, and the largest hall on the St. Louis fair grounds would be too small to contain it. Each one of fifty counties would take pride in collecting, packing and displaying its own production, and in making the most and best of them, and a committee of the State Horticultural Society have the superintendence of the whole.

Should the society contemplate such an effort, we doubt not that the fair association would afford them space, though we have not approached them on the subject, and facilitate the enterprise all they properly could. Will the enterprising secretary, Mr. L. A. Goodman, think of this and submit it to the society at its annual meeting?—*Rural World, Nov. 26th, 1885.*

MISSOURI A GREAT FRUIT STATE.

Missouri a great fruit state? Missouri makes a great show of fruit such as has never before been equaled? That cannot be. I know Missouri is a great state, and ranks among the first in the production of corn, wheat, oats, hay, mules, horses, hogs, cattle and sheep; but for fruits we must go to Pomona's realm among the orange groves of California and Florida; the peach orchards of Delaware and Michigan, and the apple orchards of New York, and the region around the great lakes. Doubtless Missouri grows considerable fruit for home consumption, but it cannot be expected that the state can produce fruit sufficient in quantity, or good enough in quality to compete with the products of localities more favored in soil and climate for fruit-growing. The foregoing expresses very nearly the opinion held by the general public regarding Missouri as a horticultural state. Those who have studied the natural advantages and resources of the state know that altogether too low an estimate is put on them in this particular as well as in others. They know that in no like area on the continent is there more fertile soil, or that which, from its diversified character, is adapted to a wider range of products than in Missouri. They know too, and the fact should be patent to anyone who will glance at a United States map, that Missouri's geographical location is such as to give her an unequalled climate. Far enough south to escape the effects of the northern blizzards, her northern line marks in that direction the limit of successful apple culture. Her southern counties do not extend into the region of too great and enervating heat, and between her southern line and the Ozark mountains is the future great peach country of the world. On the hill-side and mountain crest of Southeast Missouri, on the rich prairies of Southwest Missouri, which extend to and across the northern part of the state; along the 400 miles of Mississippi river shore on the eastern line of the state, and the 400 miles of Missouri river that flows along the northwestern line and through the center of the state; upon almost every one of the 69,000 square miles of Missouri land, fruit can be grown in profusion and of a quality unsurpassed.

It has been a long struggle to make these facts known, not only to home-seekers from other States, but even to our own people, to con-

vince them that a peach orchard in Southern Missouri, a small fruit plantation in Southeast Missouri, or an apple orchard almost anywhere in the State is, well taken care of, a paying thing. But thanks to the *Rural World* and Missouri State Horticultural Society, the people are becoming convinced of the truth of what has been iterated and reiterated a thousand times. Thousands of acres of orchards are now being planted yearly, not simply family orchards for home use, but commercial orchards of from ten to fifty acres, and it will not be long till Missouri apples will comprise a large share of those put on the market. And they will sell because they will be equal to or better than any grown in other States. Have not Missouri apples been shown at meetings of the Mississippi Valley Horticultural Society, the American Horticultural Society, the American Pomological Society, at the World's Exposition at New Orleans, and on many minor occasions, when the best fruit in the Union were contestants for honors? And never yet has Missouri failed to take first honors where her fruit was shown. And these results have been obtained almost without State aid, with but little co-operation on the part of transportation companies, and only by the officers of the State Horticultural Society going down into their own pockets for money with which to pay expenses, and by giving their time and labor without stint to the cause, even to the neglect of their own business.

Could they do any more than had been done? To ask them to do more was almost like riding a free horse to death, but the *Rural World* wanted to see one thing more accomplished, and two or three years ago proposed that the Missouri State Horticultural Society make, in St. Louis, a show of Missouri fruit such as had never before been seen in the history of the world. Such an undertaking involved an inconceivable amount of labor and the outlay of considerable money, but the officers of the Society knew that the purpose could be accomplished if sufficient funds were to be had, and it was not until this fall that the effort could be made.

Early in the summer, arrangements were made with the management of the St. Louis Exposition to make the fruit show in connection with the exposition, which opened Sept. 5 and continued forty days. One of the finest rooms in the building was secured and the directors of the exposition assisted the society in fitting it up for the show.

Then began the work of collecting the fruit. The officers and members of the state society, the local societies, individuals and the press took hold of the enterprise and the result was the grandest show of apples both in the number of plates and quality of fruit, that has ever

been gotten together. Thirty eight counties of the state had fruit on exhibition, the entire collection comprising over 3,000 plates, and pronounced by experts of a quality never before seen.

The show surpassed in extent and quality even the most sanguine expectations of its promoters, and to the hundreds of thousands of visitors from this and other states it was a wonderful revelation.

To collect this fruit and place it on the table, keep it in good order for forty days, replacing decaying specimens every few days, was a task that cannot be appreciated by the uninitiated, but those who gave their time and labor, and contributed to its success, believe that the state will be amply remunerated for all of the outlay in the impetus it will give to fruit growing and in the elevation of her reputation. How these men are to be paid for their services is another question, but it is to be hoped that the people of the great State of Missouri will appreciate their labors in her behalf enough to ask the next legislature to place funds at the disposal of the Missouri Horticultural Society, to enable its officers to carry out such enterprises as this, without their being too great a burden.

In connection with the view of the Fruit Show, which we present herewith we present the ground plan, showing the location of the different county exhibits.

Upon the officers depended the greater part of the labor incident to the show. They have all served the state's interests, not only in connection with this Show but in every way in which they could advance horticulture, but all will heartily accord Secretary Goodman the most credit for what the society has accomplished. The organization has been in existence thirty years, but by far the most important part of what has been accomplished has been since Mr. Goodman's incumbency. He is a practical and expert horticulturist, a good business man and a pleasant gentleman, whose equal for the position he occupies would be hard to find. Major Evans has filled the office of president for many years. He is a large and successful farmer and fruit grower, a man of rare judgment and a model presiding officer. Mr. Murray is one of Holt county's most successful nurserymen and fruit growers, and is a man whose counsel is sought and whose friendship is valued. D. S. Holman, the Treasurer, is now well advanced in years, but still vigorous and one of the most indefatigable of workers in the cause of horticulture.
—*Coleman's Rural World.*

How successful this has been and what it will do for us, as well as some thoughts on the subject, are thus given by the *Globe-Democrat* of September 30, 1888:

MISSOURI FRUIT.

SUCCESS OF THE DISPLAY MADE AT THE GREAT ST. LOUIS EXPOSITION.

Entering the room occupied by the Missouri State Horticultural Society at the Exposition, one is impressed with the magnitude of the fruit display. The whole of the room formerly occupied by Barr's exhibit is given up to the fruit display. Here, arranged by counties, are the fruits which each has sent, to show the people that their county is adapted to fruit-growing. Thirty-eight of the counties of the State are represented, some with a large and elaborate display of 250 or 300 plates, embracing all the varieties of apples, pears and grapes grown in their counties. Here are seen apples from the very earliest—the red June—to the latest of the winter varieties, which are not yet even ripe. When one begins to count the trouble and expense of such a collection of all the summer, fall and winter fruits, and of keeping them up for a space of six weeks, they then see the necessity of work and money to make such a showing; all of these county displays made by members of the State Horticultural Society, for the glory of the state, and without a cent of pay, even in many cases paying their own expenses, and in every instance giving their time without recompense; it seems that the enthusiastic horticulturist is not only anxious to let the world know what can be grown in the State, but to tell them how to grow it.

This display is thus made by the fruit-growers of the state to let the thousands of visitors from the different states see that Missouri is peculiarly adapted to fruit-growing in all its branches. In fact, they want to prove to the visitors, and to many of the people of their own state as well, that Missouri is what they claim for it, "The very best state in the Union for fruit-growing."

THE OBJECT OF INCREASE.

As one of the members stated, "There is no better opening in any line of business than good, intelligent, systematic fruit-growing, on the

cheap lands of Missouri. The fact is, that when we can get large, commercial orchards at forty, eighty or one hundred and sixty acres in bearing and a dozen or so of them in any one piece, then we can get good paying prices for our fruits. The more we have at any one place of good shipping fruits, the easier it is to sell them."

Some of these counties, in their display, have had on their tables over 200 varieties of fruit. These have to be replaced every two or three days and fresh fruit put in their place. The peaches, pears and grapes are nearly past their time, and their places will be taken with apples as they disappear. Some of the county displays are made up by one individual, who has enough love for his business and public spirit to at least send in a fine collection of fruit; these have been put up by the State Society and their county sign put over them. The visitor finds among the fruits apples of all sizes and colors; he sees the beautiful little "Lady Apple," which has a world-wide reputation as a "party" apple, and near it the "Monstrous Pippin" and "Gloria Mundi," which measures from fifteen to seventeen inches in circumference and weighs from twenty-four to thirty ounces; perfect monsters. Here he sees, also, the perfect specimens of hundreds of varieties of apples, some for family use, some for special amateur use, and some for purely commercial use.

MOUTH-WATERING SPECIMENS.

But what strikes the fancy of the visitors most is not so much the large or small varieties as it is the beautiful colored specimens of eating apples. They do not want the very large or the very small varieties of fruits, but they want these nicely colored and extra good in quality. Hence, the beautiful specimens of Jonathan, Grimes' Golden, Huntsman, Flora, Ladyfinger, Northern Spy, Wagner, Fall Pippin, Penn Red Streak, Maiden's Blush, Belle Flower, Winesap and such class of apples striking their fancy the most. Their inquiry is always, "where can we get such varieties of apples for our own use?" It seems as if it would pay some commission men to have had a display there for their own advertisement.

The wonder of another class, and very many of them, too, is when they enter the room and see the signs all around of so many different counties of Missouri, to ask the question, "Is all this fruit grown in Missouri?" "Well, I am astonished. I did not have any idea that Missouri could grow such fruit, and especially apples." Many a man from the east and north, who is looking for a home in a milder climate, has thus expressed himself, and has gone away with his mind made up to look further into the matter. Two men by the name of Withers, from

Cook County, Ill., said they had frozen up long enough in the north, and were going into Southern Missouri to look out homes for themselves and friends.

Thus so soon are seen practical results from this grand display of Missouri products.

THE NORTHERN COUNTIES.

One other point seems to astonish people as they inquire about fruit lands, that up near the northwest corner of the state, at the Iowa and Nebraska line, on the "Loess" formation of the Missouri river bluffs, it is possible to produce such wonderful apples as are shown from Holt County. The fact is that on those "Loess hills" there is one of the grandest apple regions in all the west. It seems to be the end of the good fruit lands of the northwest. Here is the best market in all the whole western country, for the people of Dakota, Nebraska, Iowa and the whole northwest are anxious to get every bushel of fruit that the growers can give them, and at very remunerative prices, too.

Again, the question is asked by hundreds of people, "Is not this fruit show a new thing?" In regard to this exposition, of course it is, and a very pleasing one, too. But as to being a new thing for the state society, it is by no means. Around the room are seen hanging some twenty or more certificates of awards, many of them from the World's Fair at New Orleans, one for the "best and largest collection of apples grown in the southern district," one for the "best collection of 100 varieties of apples," one for the "best collection of 50 varieties of apples," and seventeen other certificates for varieties shown. Besides these are shown one gold medal from the World's Fair, two Wilder medals for large displays made at the American Pomological Society, one medal from the Mississippi Valley Horticultural Society for the largest collection of apples made at their opening show here in St. Louis at its organization.

The visitor is also shown two diplomas from the St. Louis Fair Association for the "best and largest collections of fruits," one for the year 1885 and one for the year 1886.

NEVER TOOK SECOND.

Besides all these, the society holds four other medals and has made many shows in different parts of the United States, and has never yet taken second place in any of the awards given. The enthusiastic of-

ficers of the state society say that they do not believe there is a better state in all the union for a man to come to if he wishes a good, pleasant, delightful home, and wishes to make money growing fruits.

There are represented in this display the following county horticultural societies: Holt county, Mound City, Jasper county, Greene county, Vernon county, Bates county, Montgomery county, Mercer county, Cooper county, Howell county—ten in all.

Other displays are made by the counties direct: Callaway, Andrew, Clay, Gasconade, Crawford, Johnson, Oregon, Barton, Franklin, Platte, Jackson, Adair, Wayne, St. Louis, Pettis, Putnam, Buchanan, Olden Fruit company—eighteen in all.

When it is understood that this display is collected and made by the members of the local societies of the state and the working members in the counties where there are no societies, without a cent of pay for time spent or fruit given, and often times without a dollar for even expenses, one can but just get an inkling of what could be done would the railroads treat the fruit interests of the state as they do the states west, south and north. But while Kansas, Nebraska and Arkansas railroads will even take hold and make a display for the credit of the state, pay for all help, for time, and transporting both fruit and men free of charge, yet this great state of Missouri can scarcely get a cut rate for fruits sent in, and no assistance whatever in regard to transportation of the members in working up the matter, or in attending to the display, when they are giving their time free of charge.

THE RAILROADS' DUTY.

It seems that if the railroads would give the Horticultural Society its just dues, they would on all such occasions give free transportation for all who are working in the cause as well as the fruits. They are the first to reap the benefit of all such planting and immigration, and should assist these enthusiastic horticulturalists who are working for the honor and good of the state.

The secretary says they have received many favors from the express companies in sending fruits at half rates, from the exposition management in its very great assistance, without which the display could not have been made, and from our local societies, enthusiastic fruit-growers, who have so freely and gladly done their part in this work.

The fruit display shows about 3000 plates of fruits, and this hardly gives an idea of what amount of fruit there has been sent in or will take for the exhibit. Many of the earlier varieties of apples and all the

grapes and peaches have been replaced two, three or four times already, and will take as many more changes before the end of the exposition, so that it is easily seen that it will take 12,000 to 15,000 plates of fruit to keep this display up until the close. What work this involves in collecting, wrapping and shipping, to say nothing of the changes made on the tables, the cleaning up the exhibit every morning and the handling over and over the plates of fruit, only those who have done and are doing the work can realize.

Taken, then, the Missouri Fruit Show, as it now appears, and the officers given assurance that it will be improved every week up to the close, the visitor has to say that no other display has ever begun to show the extensive capabilities of the great state of Missouri in the fruit line as has this one. No one can view the extensive display and say aught against Missouri as a fruit district, and it is the firm belief that it will do very much to induce the people of other states to find a home in Missouri.

Also this report given by the *Star-Sayings*, St. Louis:

OUR MONSTER SHOW.

THE TIDE OF CURIOSITY SETTING IN AT THE EXPOSITION COUNTLESS
OBJECT LESSONS—AN ARRAY OF WONDERS CONFUSING
TO THE UNTUTORED MIND.

You know when you are near the pomological display of the Missouri State Horticultural Society, at the Exposition, long before you get there, for the fragrance of apples permeates the atmosphere like an orchard at ripening time. To an apple lover, it is not unlike being in Tartaros, to walk through the large room filled with the fruit treasures of

the state, which are pretty enough and smell good enough to rouse in the heart of the most moral a desire to break the unwritten law of "hands off." Poor old Tantalus! If you want to know how he felt, just take a stroll, about noon time, through the pomological exhibit.

There are apples as yellow as the fabled three which lost Atalanta her famous race, and gave Hippomenes a wife; apples that have been kissed by the sun-god into a permanent blush; apples that are not as green as they look; streaked apples, mellow apples, hard apples, crab-apples—all kinds of apples, except apples of discord and Dead Sea apples.

Nor are apples alone to be seen, although they form the most prominent feature in this magnificent exhibit; for Gasconade County alone sends 40 different varieties of grapes, and there are pears in abundance, some vieing in beauty with the California production, and all of exquisite flavor. "There is an impression abroad," said the gentlemanly secretary, "especially in the Eastern states, that 'old Missouri' can raise nothing but Jesse James gangs and border ruffians, and even in our own cities it has grown to be a custom to send North and East for winter apples. Now, we want the people to see just what the state can do as a fruit state, hence this display from 36 different counties. This is not a money making scheme, and we have no object but furthering the state interests as a fruit growing center, and rousing the farmers, themselves, to an appreciation of the vast resources in their possession. This exhibit, therefore, is gotten up by eight local county societies, and the remaining, by private individuals and nurserymen."

The eight societies, which have separate displays ranging from 250 to 300 plates each, are, respectively: Holt, Bates, Vernon, Jasper, Montgomery, Mercer, Greene and Cooper, and the different pyramids of fruit are beautiful in the extreme. Every day the plates are looked over and the fruit renewed, so that they present a fresh appearance constantly.

The other counties, where the displays are those of individuals and nurserymen, and vary from 30 to 150 plates, are: Callaway, Gasconade, Johnson, Barton, Clay, Platte, Howell, Adair, Wayne, Pettis, Buchanan, Franklin and St. Louis, three of which will send in their contribution in a few days after their local fairs are over. A visitor from the Cincinnati Exposition yesterday was heard to remark that one pyramid of the fruit in this vast exhibit was equal to the entire collection of the Cincinnati Exposition. The gentlemen in charge of this display are very proud of it, and with every reason to be so, as it is the largest ever made by the society and beyond praise in itself, but is fine enough to place the state in the front ranks of the fruit growers.

"We are willing to meet any eastern horticultural exhibit," says one, "on either size, quality or perfection of color now, although our collection will not be at its very best before October 1, when all the varieties of winter apples will be ripe enough to ship, and we will have some beautiful specimens then that are not represented now at all."

The general arrangement of the large room devoted to the Horticultural Society is very attractive. The large center pagoda, with its trimming of evergreens, breaks the distance and takes from the great height of the ceiling, while its environment of pomological treasures is both prominent and refreshing to the eye. The secretary's office is a charming bower, half octagonal, with its pillars garlanded with wreaths of ground pine, its roof filled with potted evergreens that soften the glare of light from the lofty windows, and its further adornment of fruit in clusters, plants and goldenrod.

Greene County sends a plate of a new variety of apples that won the first premium at Springfield for beauty.

Jasper County has not completed its display, but has a collection of such quality and extent as to place it ahead on fruit as well as minerals.

This society received the gold medal at the World's Fair in New Orleans, two silver medals and a premium of \$500. They have also three Wilder medals from the American Pomological Society, first premium and diploma in 1885 and 1886 from the St. Louis Fair, besides numbers of minor testimonials.

Especially interesting it is to know that our extreme Southwest comes so nobly to the front in fruit culture, the Ozark region sending delicious peaches, to the culture of which this region is peculiarly adapted. The entire display is worthy of several visits from all, as all alike are interested in the subject. Whether farmer or city man or woman, we all belong to the great army of consumers, and in this beautiful exhibit there is all that is pleasure to the eye and tempting to the palate.

A list of fruit shown by each county has been prepared, but it will be too long to embody, and only a list of all the fruits shown will be given; thus giving our friends an opportunity of seeing how great and diversified are the fruits of Missouri. And, when we realize that many of our earlier fruits were lost before that time, and that less than one third of our counties made any show at all, and that only ten or twelve made an extra effort at that. If, on top of all this we could have had a nice large collection of our small fruits and stone fruits, in jars, how great would have been the result; and that at least one hundred of our

counties could have done nearly as well as our best, if they had had the men and money to do it, then we begin to realize how great and varied are the advantages of Missouri, for fruit growing.

A committee of four persons were invited from other states, to pass upon the exhibits, and their report is submitted.

The committee were; A. C. Hammond, of Warsaw, Ill.; Frank Holsinger, of Rosedale, Kas.; W. M. Samuels, of Clinton, Ky. and E. A. Reihl, of Alton, Ill.

The following is their report.

To the Officers and Members of the Missouri Horticultural Society:

It affords us great pleasure to have the privilege of examining such a collection of fruit and make such a favorable report.

The Missouri Fruit exhibition, was a collection of fruit contributed by about thirty-eight counties of the state, shown in the Exposition building, by the officers of the State Horticultural Society. The show consisted of about 3,000 plates of fruit; 2,300 plates of apples, 300 plates pears, 200 plates grapes, 100 plates peaches and 100 plates of plums and crab-apples and some miscellaneous fruits.

The exhibition was as good in arrangement and quality of fruit as it was large, and in many ways showed the work of the careful, scientific horticulturist, and plainly demonstrated that Missouri possesses some of the finest locations for fruit growing on the continent.

No better method of advertising the capabilities of the state, in the way of fruit growing, and attracting settlers to her unoccupied lands, could have been devised; nor a better place found, in which to make the show, as the Exposition is visited, not only by tens of thousands of her own citizens, but by thousands from other states, who, seeing what can be done in this line, will be attracted to her, and make their homes on her fruitful farms.

Such exhibitions are of incalculable benefit, not only do they attract the right kind of settlers from abroad, but they show the citizens of the state that makes them, their own resources, and stimulates fruit tree planting, not only for commercial purposes, but also for home use, thus adding to the health happiness and general welfare of the people.

This exhibition clearly showed the good accomplished by local horticultural societies.

Usually the largest, and always the best exhibits were from those counties having a live horticultural society. Bates, Holt, Vernon, How-

ell, Jasper, Greene, Montgomery, Pettis and Cooper counties showed plainly by the exhibits made, that they had within their borders live, practical, as well as scientific horticulturists.

The exhibit made by the Olden Fruit Co., of Howell County, was particularly good and interesting. Specimens of some of the ordinary varieties, such as Ben Davis, Willow, Rome Beauty, Ortly and Winesap, were so large that your committee scarcely recognized them, and, taking size, quality, color and general appearance into consideration, we think it a very fine collection.

The exhibition from Boone County was entirely from the University orchard and was exceedingly interesting. It consisted of fifty-five varieties of apples, and included a large number of very promising new varieties, some of which will doubtless be heard from in years to come.

Great credit is due President, Vice-President, Secretary and Treasurer of the State Horticultural Society for the earnest, persistent work they have done in planting and arranging the details of this show and making it such a grand success. They have doubtless been ably seconded by other officers and members of the Society and by the local Horticultural Societies of the State, but the principal burden has rested on them, and whatever expense they have incurred should be refunded by the state, as the benefit of such an exhibit of the products of the state cannot fail to be a thousand times greater than the cost.

We have, no doubt, but hundreds and perhaps thousands of strangers, who were seeking homes in the West, will be induced by what they saw here of the wonderful capabilities of this great State to cast their lot within her borders and plant trees on the soil that produces such wonderful fruit.

We would suggest, that this show be repeated in the future, and that other states consider the propriety of holding similar exhibits.

A. C. HAMMOND, Warsaw, Ill.

E. A. RIEHL, Alton, Ill.

FRANK HOLINGER, Rosedale, Kas.

W. M. SAMUELS, Clinton, Ky.

Committee.

Again, as an evidence of the value of our display, we received many compliments from hundreds of the visitors, and the following letter from Secretary Johnston of the Exposition, and also a series of resolutions from the officers and executive committee, showing how much they thought of the "Fruit Show."

ST. LOUIS, Oct. 23d, 1888.

L. A. Goodman, Secretary State Pomological Society:

DEAR SIR.—You will permit me on behalf of this organization to express our high appreciation of the valuable exhibit made, during the exposition just closed, by your society.

The result of your efforts to place the resources of our state intelligently before our people, as you have unquestionably done, will, I am sure, be productive of great good to Missouri. I earnestly hope that your association will not remain satisfied with what has been accomplished this season, but rather make your plans sufficiently in advance of another year, to enable you to again be with us. I trust that our legislators will make an appropriation sufficiently generous to enable you to do the state full justice. With best wishes to yourself and colleagues, I am dear sir,

Yours very truly.

J. H. JOHNSTON, Secretary.

ST. LOUIS, Oct., 23d, 1888.

Resolved, That the directors of the St. Louis Exposition and Music Hall Association cannot permit the Fifth Annual Exposition to close without expressing their high appreciation of the value of the display made by the Missouri State Horticultural Society, not only to the exposition as an attraction, but to the state at large.

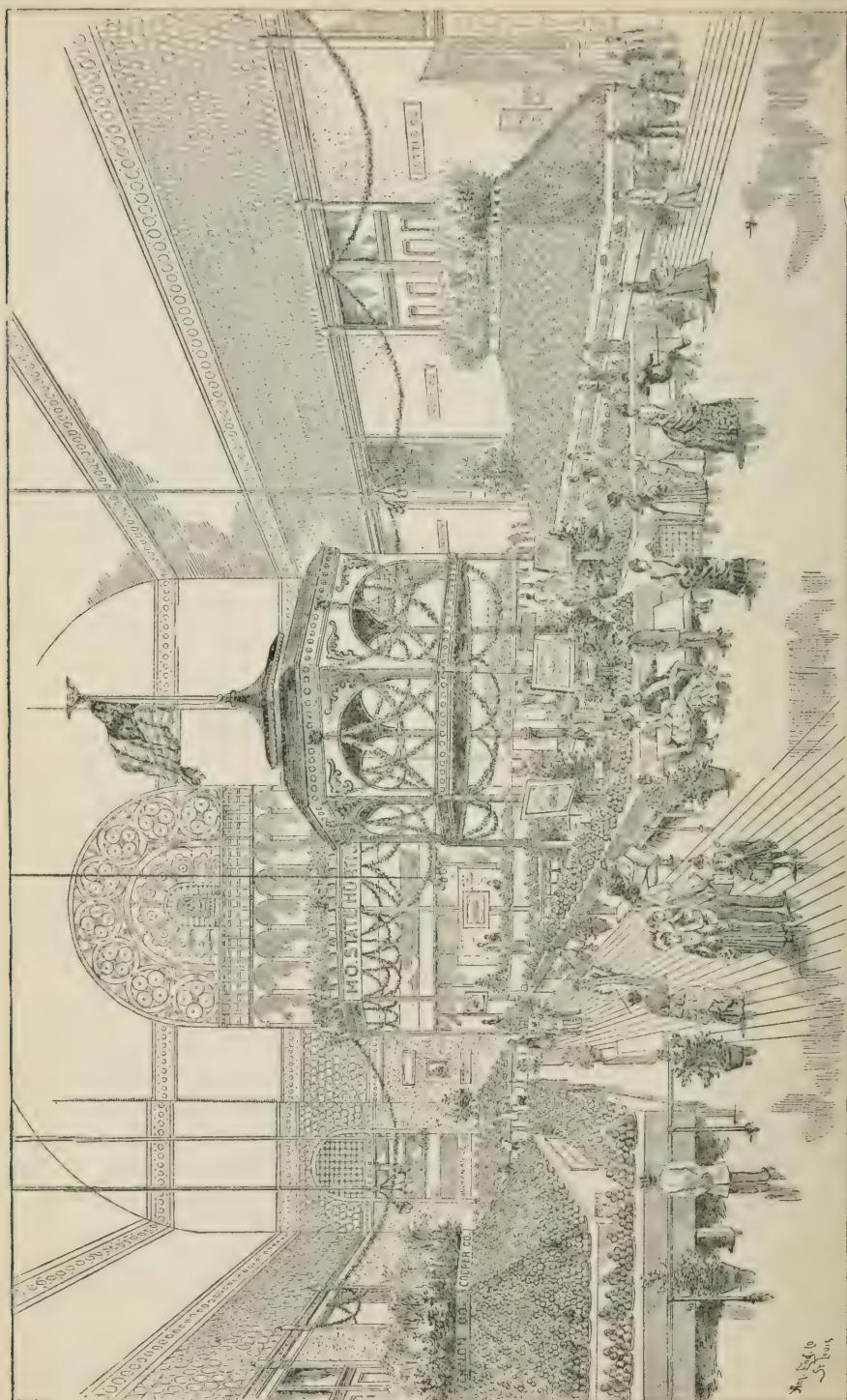
Resolved That while the splendid array of fruits exhibited has certainly awakened very wide and extended interest in the capacity of Missouri as a fruit-growing state, second, we believe to none in the union, it is a matter of regret that circumstances have limited the display of the production to only thirty-eight out of one hundred and fourteen counties, many of the most fruitful being unrepresented, and we hope that in future years, with the example already established, the interest of the fruit-growers of the state in this work may be very largely extended.

Resolved, further, That we recognize in Mr. J. C. Evans, of Harlem, president, and Mr. L. A. Goodman, secretary of the Missouri State Horticultural Society, gentlemen whose unselfish and well-directed labors in making and superintending the display of 1888, are calculated to extend the reputation of the state, and to induce immigration and settle-

ment of the most valuable kind, and we commend the society they represent to the legislature as one worthy of the greatest encouragement.

BY OFFICERS AND DIRECTORS.

In order to get a good idea of the display as a whole, and that those who did not see the show can realize something of the importance and beauty of the room, we have had a sketch made, and from it the following cut, thus giving everyone a fair impression of the room as it appeared at its best.



A meeting of those present was held at room 4, Exposition Building, and the following report of that meeting will give some idea of how we felt over the success of our fruit show. The display seemed to surprise even ourselves, and we are happy to report that the most unbounded enthusiasm was awakened in the minds of all by our success.

A HORTICULTURAL MEETING AT THE ST. LOUIS EXPOSITION.

In response to a call issued by Secretary L. A. Goodman of the Missouri Horticultural Society, there assembled in one of the reception rooms of the Exposition building, Friday evening, October 5, a company of horticulturists and those interested in horticulture who were attending the Missouri Fruit Show.

Pres. J. C. Evans called the meeting to order and in a few remarks stated why it had been called. We could not, he said let pass the opportunity of having a reunion of those who were visiting the show that we might talk over what had been accomplished and get ideas for future work. Besides the Missourians present, Kentucky, Illinois and Kansas were represented in the meeting and it would be well to have some expressions from those gentlemen as to what they thought of the Fruit Show.

This had been a departure from the usual order of fruit exhibitions, and we should like to know what the gentlemen thought of it. Heretofore, exhibitions of fruit have been made a matter of contest for premiums or some mark of distinction. States have contested with states, counties with counties, societies with societies, and individuals with individuals, for honors, the result being that while some win victories, others must suffer defeat. In this case individuals, counties, and societies have united in a fraternal effort to win for our commonwealth praise and honor, and to make brighter and more illustrious her name among all our people. We want to know if the effort has been commendable and is worthy of repetition by ourselves and imitation by other states.

Mr. Murtfeldt expressed the thought that no calling contributed more to the dignity and pleasure of man than did horticulture. The senses of sight, smell and taste were gratified. He spoke of the splendid display of fruits which was reflecting so much honor on grand old Missouri. The preminence of the state in fruit growing was plainly shown in this exhibit. All parts of the state were represented. The people of this state are much indebted to those who have made this display, and all who see it must be benefitted. No man or woman of taste can pass through the room and go away unmoved.

Mr. W. M. Samuels, of Clinton, Kentucky, commented on the new departure in exhibiting fruits by counties, without expectation of winning any premium, but merely for the sake of demonstrating the advantages of each for fruit growing, and he thought it an excellent idea. He said Missourians ought to be proud of the State. The show had clearly proven her superiority in the production of apples at least. He had attended many fruit shows but had never seen finer fruit anywhere, and hoped that this would not be the last show of the kind.

E. A. Richl, Vice-President of the Southern Illinois Horticultural Society, Alton, Illinois, thought the Show a grand, good one, and that those who have made it deserve great credit. He, being a native of the state, was proud of her. The Show, he said, would do the state great good, for it will teach even her own people that she can produce better fruit than they knew. Fruit supplies to the human system what is needed to displace the intoxicants like whisky and tobacco. Illinois is trying to emulate Missouri in the development of horticulture. Their State Society meets at Alton next winter, and he hoped to see many of the friends from Missouri present.

Prof. F. E. Nipher, of Washington University, Director of the Missouri Weather Service, was introduced and asked to make a few remarks on the relation of horticulture to meteorology. He said it was not necessary to go into an explanation as to how meteorology affected horticulture. That was clearly enough understood by those present. He would explain, however, what the work of the State Weather Service had done since its organization ten years ago. The observations had been on temperature, rainfall, etc., are made by volunteer observers, some forty, in number, scattered over the state. The work of the central office in reducing the observations to tables and in form to be given to the public, had been done by himself, at his own expense, with the help of a few interested friends. Being engaged as a teacher, he could only devote some of his leisure time to this work, and being under the necessity of earning a living, he could not afford to spend much money

for the benefit of the public. Six years ago he made an attempt to get some aid from the state Legislature to carry on this work, but did not succeed.

If such aid could be obtained the service could be made useful to the state. Not only should climate be studied, but we should do something to develop a system of local storm warnings. When patents on telephones expire, as they will in a few years, and they become less costly, farm houses can be connected with town, and the different towns in a section of state connected. It will then be quite possible to develop such a system.

Major F. Holsinger, Secretary Missouri Valley Horticultural Society, Rosedale, Kan., thought the exhibit of fruits showed conclusively which of the counties in the state had progressive horticultural societies. The novice will often select large, overgrown, imperfect specimens. The collection was, on the whole, very fine, and Missouri is undoubtedly the finest fruit state in the union, especially for apples. We in Kansas, he said, cannot compete with you. No state in the union has such general advantages as a fruit state, and this display will do much to advertise that fact.

The \$30,000 spent by Kansas a few years ago in making a display of her products resulted in adding over 100,000 to her population. Missouri is a better state than Kansas to live in.

Prof. L. H. Pammel, of the Shaw School of Botany, spoke of the cotton blight which he had been investigating in Texas during the summer. As this blight, which to him, seemed to be caused by a fungus, seemed also to affect fruit trees and plants, it would be a matter of interest to horticulturists to know something of it.

Mr. N. F. Murray, Vice-President Missouri Horticultural Society, Elm Grove, Mo., commented on Prof. Nipher's remarks, and said there was more in the matter than we might at first think. There was no question in his mind as to the value to be derived from an efficient weather service but we know how difficult it is to get our legislators to see this.

He lost \$300 worth of celery one season, by frost, on the 17th of October, which he could have saved, had he had twenty-four hours notice of the fall in temperature. Major Holsinger has just told us how Kansas made money by spending money to advertise her advantages. Missouri could spend money in similar ways to a good purpose.

Judge Samuel Miller, of Bluffton, Missouri, said, that when the idea of making a show of Missouri fruits was suggested to him, he thought

the undertaking was too vast, but what do we see here? He had, he said, seen all the big fruit displays in the East, but this Missouri display was the finest of them all. Missouri is the garden of Pennsylvania. The show is a great credit to the state, and to the United States. Could this collection of fruit be set down in New York, how surprised they would be that such specimens could be produced in Missouri.

D. S. Holman, Treasurer Missouri State Horticultural Society, Springfield, Missouri, being called on, said he had enjoyed listening to the remarks more than he would speaking. Horticulture, he said, had a manifold mission. There is nothing selfish in the calling; it unites men and states, and creates a feeling of sociability. He had been surprised in the last few weeks to see the fine specimens that had come in from all parts of the state, and he was proud of her. He thought this method the best way to convince the people of the worth of Missouri as a horticultural state, and wished that he was a young man, that he might grow apples.

Z. T. Russell, Secretary Jasper County Horticultural Society, Carthage, Missouri, expressed his pleasure in having had the opportunity of seeing such a grand display of fruits and studying the different varieties. He would return home with renewed zeal in the cause of horticulture, and would do better work in the future.

After a few farewell remarks by the President, the meeting adjourned.—*Rural World.*

The result of all this work and labor of so many can be only appreciated in time. Day after day and year after year will prove what we now state, that no greater success was ever made by any fruit show in the United States. The work of going over the whole of the show every day or two, dusting, wiping, cleaning, taking off the decayed ones and replacing with fresh can only be realized by those who have tried it.

At the close of the exposition there were on the tables nearly one hundred and fifty bushels of fruit, and I suppose that there were used in the whole nearly five hundred bushels of fruit, to keep it up during the forty days. At no time did the display deteriorate, but each time, day by day, it grew better, so that at the end it was better than it ever had been.

About one hundred and twenty plates were selected and sent to Washington, there to be prepared for the display to be made in Paris next year. I am sure that no better specimens could be found anywhere in the whole United States than those we sent.

About twelve barrels were saved for this meeting, a lot of baskets were filled for the officers of the exposition, a lot was given to the men who assisted in carrying up the boxes and barrels, and the rest were sold.

As a final result, the expense was about \$700.00, and that report will be furnished by our Treasurer, and we feel that at least we have done some good, and that the State Society is entitled to the credit for it.

L. A. GOODMAN,
Secretary.

Miss Edna Sterrett than gave an artistic rendering of "Gone with a Handsomer Man." After which Mrs. T. J. Modie sang a solo most charmingly.

HORTICULTURE.

WILLIE FOREMAN, NEVADA.

Horticulture, according to Webster, means "The Art of Cultivating Gardens." As an art, horticulture dates back thousands of years but as a science it is new. When man ceased his nomadic roamings, he had no wild herbs, such as onions, garlics, etc., which he gathered along, to rely upon, but had to follow horticultural pursuits more or less. Like to-day he traded and trafficed. One man might put his whole time and attention to agriculture, while another would have his little herd of cattle or sheep. We find from history, that the Egyptians were the first to cultivate the soil, and each nation afterward follows agricultural pursuits more or less, excepting the Carthaginians, who were traders; being traders, they required the rights of the Mediterranean, and, as nations grew up on their opposite borders, they disputed their rights, and, it is said, had it not been for its wars, it would not have been known. Therefore we see the nations, which had the most agriculture, rank foremost. There is Rome, who had the most agriculture, stood the conquerors of the world.

It is said when Diocletian and Maximum resigned the throne, Diocletian amused himself by working in his garden and when Maximum sought to draw him out of his retirement, he wrote: "If you could see the cabbages I have planted with my own hand, you would never ask me to remount the throne." There has been a great improvement in horticulture from that day down to the present; as man has improved, God has made the plants and their ways similar to that of man; first the plant breathes the same as man, the only difference it inhales nitrogen and exhales oxygen and man inhales oxygen and exhales nitrogen; second, if a good plant of the same kind be placed with a bad one, the pollen of the bad plant will affect that of the good one, and make a plant which is not as good as it would have been, but by placing two good ones together, the same changes will take place, but it will form a new plant just as good—if not better, it will not be any worse. The same with man, if a good boy be placed with a bad boy to grow up to manhood, the good boy will take the bad boy's ways seldom ever the bad boy takes the good boy's ways) and be a bad boy, too; and third, trees are like men—the wide spreading oak and the old apple tree represents the liberal and charitable man, its wide limbs afford a rest for each tired bird as it flits along, and the long slender poplar with its limbs pointing straight up and down affording no place for the tired bird to light upon nor no shade for man nor beast when scorched by the noonday sun, represents the stingy man who cares for nobody but himself, just so he has his palaces to roam in, he cares nothing for his poor brother who is dying with hunger and frozen with cold.

Horticulture is as nice financially as it is to the palate. The supposed gardens of the Hesperides were surrounded by a wall eighteen fathoms high. The garden was inhabited by three stern sisters, the Hesperides, and was guarded by a three-headed dragon which never slept. Among the trees of this garden were golden apples. The eleventh labor of Hercules was to carry off the golden apples, which he did. When I look on those golden apples, I would like to be Hercules.

FLORICULTURE.

ESSAY READ BY MRS. GEO. E. DUGAN, "MAY MYRTLE," OF SEDALIA.

"And the spring rose in the garden fair,
Like the spirit of love, felt everywhere;
And each flower and herb on earth's dark breast,
Rose from the dreams of its wintry rest."

It has been truly said, "that a gift of flowers is always a most charming and acceptable one. A queen may give them to her subjects, and the poorest subject may offer them to a monarch." They are pledges of friendship, of love and of good will. The coy maiden may give a fragrant bouquet to the object of her adoration and the sweet blossoms will whisper the tenderness her heart feels but modesty forbids her to utter. The sighing swain who is too bashful to speak his sentiments to the one so dearly beloved, may give her a rose, and the delicate messenger will tell the sweet story in the most beautiful and poetical of all the languages.

Who wonders that the dainty forget-me-not is such a favorite, when it says so prettily to the one receiving it, "I come to you with a message of true love."

The myrtle too, mingles love with sadness, and is a fit emblem to wreath the white shafts, where our beloved dead lie at rest.

The language of flowers is a most interesting one. Very few of the young people ever neglect to master it. Handkerchief and fan flirtations, are rude and unrefined, but the heart's tenderest emotions may be spoken in celestial language of flora, as delicately as the fragrance exhales from the petals of a rose. These gentle missionaries from paradise have a wonderful hold on human sympathy, for they seem to speak to the soul, and to speak of a brighter and happier land beyond this "vale of tears."

I have sometimes endeavored to imagine what this world would resemble, if all the bright and beautiful blossoms had been omitted from

the list of created things. Surely we need no greater evidence of the Creator's tenderness towards us than the loveliness everywhere visible in nature.

Each succeeding season has its own peculiar radiance, its own special mission tending to bless and benefit humanity, and very seldom do we find a person who cultivates and loves flowers, who does not also acknowledge and worship the Giver of these precious gifts.

It would be impossible to frame into language the emotions called forth by the occupation of flower culture, or to convey an adequate idea of the pleasure it affords.

Lamartine, in a little story entitled "Picciola," which word is, I think, of Spanish origin and means small, has more clearly defined the intense happiness which may result from the cultivation of even one little plant than any other author I have read. "Picciola" was a tiny p'ant that had crowded its way up between the bricks of a court-yard in which prisoners of state were allowed to take their daily exercise, and the small, silent missionary of good, gave hope, joy, love, and eventually liberty, to a despairing, cynical soul, that had been hardened and embittered by "man's inhumanity to man."

To watch the budding and unfolding of a rose, is to grow, insensibly, happier and nearer to that perfect life, which animates all things,

"There is to me
A daintiness about all fragrant flowers,
That touches me like poetry.
They blow out with such simple loveliness among
The common herbs of pasturage, and they breathe
Their lives so unobtrusively, like hearts
Whose beatings are too gentle for the world."

Who does not remember the old-fashioned garden of his grandmother, where there were always, from early spring until late autumn, a succession of fragrant blossoms.

Ah, me! I seem to smell those grass pinks now, and the great purple clusters of the lilacs, the lillies and roses. There were holly-hocks, too, snowballs, snowdrops, blue-bells, and splendid crimson peonies. Then there were poppies later on, marigolds, bachelor buttons, and ever so many more annuals. It seems to me that we do not have such great golden marigolds, nor such delicate silken poppies these days, but childhood has a glad radiance peculiar to itself and we out-grow our enthusiasm as the years shadow us, and yet,

“Scenes must be beautiful,
Which daily viewed, please daily ;
And whose novelty survives
Long knowledge and the scrutiny of years.”

In the culture of flowers I have had considerable experience, and have tried to make intelligent use of the experiences of others who have kindly given the best fruits of years of study to aid the amateur.

Roses are my pride and delight, and all who will take the trouble may grow them. The hardy varieties need no especial care except good soil and proper pruning. But the delicate teas must be treated with careful consideration, or the results are not satisfactory. I obtained my knowledge of how to plant and care for roses from the Horticultural Art Journal, a book as useful as it is beautiful, and I could not bestow upon it greater praise.

In planting roses of the tenderer sorts, first dig a pit or trench two feet deep, fill it to a depth of six inches with coarse sand or gravel, over this put a layer of well-rotted compost, one foot in depth, then a top dressing of rich, fine loam. Here plant your roses, keep them shaded from the hot sun until the roots get firmly established, but always give them the night air and a couple of hours of the morning sunshine, keep them well watered in dry weather, and you will have all the roses you wish. Leave them out as late in autumn as you dare, without the risk of freezing, let them remain sometime after the nights are crisp and frosty, but cover them just enough to protect from frost. When it will not do to leave them out any longer, pot them in the same soil, and in the same manner as they were treated in the yard; cut them back slightly and set them for ten days in a dark place, gradually bring them to the light, and you will have roses all winter long.

For my house plants, I have a box six inches deep in which is four inches of sand. In this I place the flower pots, and have no trouble in growing any variety that can be cultivated in door.

Each year I raise many annuals and have splendid success with them. I usually prepare my cold frames in the autumn, and sow my seeds as early in the spring as possible. I keep the glass covered until the seeds begin to germinate, then gradually let in the light and sunshine. When the weather is fully settled, I transfer my young plants to the open ground, keeping them carefully shaded from the sun until they are firmly settled in their new home. Pansies may be transplanted very early as they will cheerfully bear quite severe weather. When a freeze is eminent, I cover them with newspapers, and I have found by

experimenting that they grow best on the northeast side of the house. Last spring—merely as an experiment—I filled my geranium bed with sawdust, only partly decayed, slightly enriched with compost from the stables, and the geraniums were marvels of grace and beauty. My friends would scarcely believe that they had the same varieties, mine were so much more prolific and brilliant. One lady declared that she had never seen such geraniums except in California. I suppose that everyone knows that the best way to keep the old stocks of Geraniums is to pull them up by the roots and hang them top down in the cellar.

Floriculture has for me the same sort of fascination that painting seems to possess for the artist, and the magnificent effects that can be produced by massing colors and judiciously arranging the lights and shadows is in itself a fine art.

Last summer my pansy bed was the delight of all my visitors, yet I only had six dozen plants, but the colors ran from dusky black to snowy white. A dear old lady came one day, when we were all absent, and she said afterwards, "I was sorry to have missed you, but I knelt down and worshiped beside your pansy bed, and I felt that the Creator was very near to me."

My sweet peas were intensely beautiful last summer and autumn. As it was my first successful year with them, I will explain how they were treated. I planted them in sandy soil on the east side of the porch, and literally deluged the ground with them, for I did not think they would amount to anything, but they all came up quite promptly and I think every one of them thrived. As soon as they began to put forth feelers I had a wire trellis made for them, and they grew to be six feet high and their butterfly blossoms were beautiful beyond description.

This theme is really inexhaustible; your patience, probably, is not, and I would not weary you. Yet, before closing, I would earnestly urge every lady present to grow Annuals; it is such a fine field in which to develop health and genuine happiness. Your hands will get brown and your cheeks will be tanned, but the sparkling life-tide thrilling through your bodies will more than compensate such minor inconveniences.

Engage in floriculture and the "budding spring time" will mean more to you than it ever did before. The birds will speak to you in a new and sweeter language and you will understand them.

Like Maurice Thompson, you will be unconsciously interpreting nature's secret, and will say in his language: "The more I have studied nature, the more have I become aware of God, for when we study nature we study Him; not in a materialistic or pantheistic sense, but in the Christian sense. The will of the universe is God's will, because God made

the universe as He made man, and blew into it the life and energy that fills it. I see no clash between christianity and science. Geology tells me the same story that Moses and the prophets tell me. The birds sing it, the flowers hint it, the waters murmur it, and all the aspirations of my soul are founded on it."

O, what a glory doth this world put on
For him that with a fervent heart goes forth
Under the bright and glorious sky, and looks
On duties well performed, and days well spent !
For him the wind, aye, and the yellow leaves,
Shall have a voice and give him eloquent teachings;
He shall so hear the solemn hymn that death
Has lifted up for all, that he shall go,
To his long resting place without a tear.

Miss Maud Graves then sang a solo, "The Irish Christening," and received an enthusiastic encore.

GOING WEST.

BY J. W. CLARK, COLUMBIA, MO.

In looking over the program of this meeting, I found my name, with the following subject opposite; "Going West," and thought perhaps the better way of dealing with it, would be to give a short account of what the horticulturist leaves behind, as he bids farewell to the rugged hills of old New England, for a home in your great west.

Your soil and climate differs from ours; your rich prairie sends forth its rank growth almost unaided, while we must strain every nerve and still be unable to equal you in this respect.

You can plant your apple orchard, and in six or seven years gather good crops of luscious fruit, and this without the aid of manure of any kind; while we must wait at least ten years, and be at the expense of buying fertilizers with which to feed our trees; else we must wait still longer before we can eat the fruit of our labors.

The apple there, as well as here, is grown more than any other kind or fruit. In variety your apples differ from ours; with the exception of summer varieties, which are nearly the same. Our best fall apples are, Congress, Fall Pippin, Gravenstein and Porters. The first is an old local variety; at least I have failed to find it grown to any extent, except in a few towns in the Connecticut valley.

As a cooking apple it stands second to none. It is a grand old apple, and worthy of cultivation wherever it can be made to thrive. This, with the Gravenstein are our two most profitable fall apples.

Of winter apples the Baldwin and Rhode Island Greening, stand first; of these the Baldwin is the most profitable; It is remarkably productive, and stands shipping better than any other variety grown in the east. If a good keeping sweet apple is wanted, the Talman's Sweet is selected. Although we have a host of other varieties or app'les, the nearer one keeps to the varieties named, when planting a commercial orchard, the more profitable will it be found. Boston is our best market, for whenever the supply is greater than the home demand, the surplus is shipped to England, thus keeping the price more uniform. The price of apples well picked, sorted and packed, per barrel one year with another is about \$1.50.

Among pears for general cultivation the Bartlett takes the lead, producing the most fruit, under all conditions and circumstances of any variety grown.

Next to the Bartlett for profit comes the Beurre d'Anjou, Seckle and Beurre Bosc, this last variety wherever it makes a good growth is a very profitable pear. I have stood in Quincy market, Boston, and seen the Bosc sell for over three times the price good Bartletts sold at.

For Dwarf pears the Duchess stands first, but even with this variety, few have made a success financially, and as a whole Dwarf pears are not popular with our orchardists.

The cultivation of peaches in New England is looked upon with suspicion and many are the predictions of failure, freely offered by sympathizing friends and neighbors, whenever one plants this fruit to any considerable extent; but it is my firm conviction that any man who will give his trees the proper location, soil and care, can if he will not get discouraged and give it up, make the growing of peaches profitable,

even as far north as Massachusetts; he must not expect to get a crop every year, but when he does get a crop, the price at which it sells will fully make up for the years they do not bear. I have sold peaches as high as \$6.00 per bushel, and a crop of 800 bushels gave me an average of \$3.50 per bushel.

Varieties differ greatly in their ability to resist extreme cold without injury in both their wood and fruit buds. With me the Old Mixon has given the best returns and is the least injured by severe cold. Trees of this variety, in my orchard, were well loaded with fruit the past season, notwithstanding the thermometer stood, on the morning of January 22nd, 22° below zero, and 25° below zero, the 23rd.

The plum is another fruit most people pass by when setting out an orchard, for the simple reason that they think it a hard fruit to grow, and do not take the trouble to thoroughly post themselves as to the care and cultivation necessary to make it a success.

The chief obstacles in the way of successful plum culture are black rot, rotting of the fruit and the curculio. The last is very easily controlled and instead of looking upon it as an enemy, I am almost inclined to call it a friend, for a simple mention of its name frightens many people out of planting this fruit, and in this way keeps our markets from being over-stocked, so that much better prices are obtained.

The most profitable varieties are Lombard, Washington, Bradshaw, German Prune and Damsons. In price this fruit varies greatly one year with another; and often a few days time will make a difference of from one to three dollars per bushel. The ruling price one season with another is about \$3.00 per bushel, yet I have known choice fruit sell as high as \$8.00 per bushel.

Cherries are grown to a very limited extent and are hardly classed as a market product.

Our seasons are too short to make grape culture on an extended scale attractive or profitable, as we cannot expect to ripen a crop more than three years out of five. The Concord is our most popular grape. With good culture and covering the vines in winter, the Delaware does well. Moores Early seems to promise to become a valuable variety, and may, as it becomes better known, replace the Concord. The Worden is another popular grape with many; but, with our short seasons, the Moores Early in my opinion is the most desirable. By girdling the vines we produce much larger berries and hasten the ripening fully two weeks, but care must be used else one may ruin his vines.

Of small fruits the strawberry is grown most extensively. The matted row is the system generally adopted. If the ground is very

weedy, the expense of cultivation is less if the hill system is selected. The varieties most generally grown are Crescent, Sharpless and Miners Prolific. Other kinds may be more profitable under certain conditions but these named seem to do best under all circumstances.

The average price for the season is about 10 cents per quart wholesale.

The secret of success with us in growing strawberries lies in heavy manuring and high cultivation.

Raspberries are not grown to such an extent as strawberries, and the markets are not over-stocked, as is often the case with strawberries. The price at which the fruit sells is also more uniform. Red berries returning about 16 cents and Black Caps from 12 cents to 15 cents per quart.

The most profitable varieties are Cuthbert for red and Gregg for black. Other varieties are grown, but their berries are either too small, soft or the canes too weak in their growth to make them desirable.

The blackberry is another fruit for which the demand is greater than the supply, good fruit never selling for less than 12 cents or 15 cents per quart.

The Agawam, Wachusett and Snyder being grown most. The Snyder, in my opinion, is the most profitable berry when all conditions are taken into account.

If asked if fruit-growing is a profitable business in New England, I should answer that, when carried on in an intelligent manner, there is no branch of farming which pays as well; but a man to succeed must not be afraid to work or to wait.

Fruit culture is the poorest business for a lazy man to go into I know of, for one must not only understand the nature and wants of each and every kind of fruit he grows, and know how to fight their enemies, but put his knowledge into his every day work. For in no business is the saying more true, "That eternal vigilence is the price of success," than it is in horticulture.

Miss Nellie Davis then gave a splendid recitation which excited much favorable comment. The Glee Club sang a lively song and the president declared the house adjourned till Friday morning at 9 o'clock.

FRIDAY, DECEMBER 7TH, 9 A. M.

Before the meeting of the State Society, the call for the special meeting of the small fruit growers, was attended to in one of the rooms adjacent to the Opera House, with the following results:

SMALL FRUIT GROWERS.

A special meeting of small fruit growers was held this morning at 8 o'clock, for consultation.

Major Holsinger, of Rosedale, Kansas, was elected chairman, and C. I. Robards; of Butler, Missouri, secretary.

Mr. Nelson, of Springfield, addressed the meeting on the subject of evaporated raspberries.

By motion of the secretary, it was ordered that a committee of two be appointed to confer with the railroad companies with regard to refrigerator cars for the shipment of small fruits.

It was moved by Mr. Ambrose and carried that they associate themselves permanently under the name of the Missouri and Kansas Fruit Growers' Association.

J. C. Evans, of Harlem, was elected permanent chairman, J. H. Logan, of Nevada, assistant secretary, and A. Ambrose, of Nevada, treasurer. Association then adjourned to meet at Kansas City on the 3d Saturday in January.

PRACTICAL GRAPE GROWING.

BY J. G. KINDER, NEVADA, MO.

It is with some hesitation I undertake to give opinions on this subject when aware that before me are veterans in grape growing who can give opinions backed up by a much greater experience and knowledge of the business. But, if by giving wrong opinions I thereby call attention to the matter and call out a correction, my effort will not be an injury.

In heading my article "Practical Grape Growing," I had an object, because we receive so much instruction nowadays that if taken literally is not practical, so much so that I think much of it acts more as a discouragement to horticulture than a help. Men argue that if it requires so very much attention and labor to accomplish certain results, they do not care to attempt it. Who has not seen the stereotyped illustrations in catalogues and in books on fruit growing, etc., of how to train the vine? Have you not noticed how nicely the vine forked just the right distance from the ground, one side branch extending just so far to the right, the other to the left, how at equal distance along these branches a lateral containing just three bunches, all just the same size, and extending just far enough up to be tied to the next slat of the trellis? I ask who has not seen just such a picture, and yet who ever saw a vineyard trained that way? Not, but if one chose to train one that way it could be accomplished in great measure, but to get paid for it grapes would have to sell for 25 cents per pound. I consider all such instructions as unpractical, and what hurts even worse, is unprofitable, and it is unnecessary. Hence let us look for practical instruction in grape growing, which means how to obtain the very best possible results from the care and labor bestowed.

The first thing to be taken into consideration by the grape grower is

THE SELECTION OF VARIETIES.

The time has come when the Concord cannot be made almost the exclusive variety. While I do not wish to pluck one leaf from the crown of laurels so justly won by this noble grape, a grape which has responded alike to the care of the vineyardist, and in a measure to the neglect of the average planter; still facts are stubborn things. The people demand a better grape. I have watched the market for years, and there is no doubt but on an average, the Delaware grape will sell for double on the market what the Concord will. Now, although the Concord will yield much more than the Delaware, still when we take into consideration cost of shipping, packing, commission, etc., it is a question if the Delaware is not the more profitable grape to raise for market. I mention these two grapes because of their ripening so near the same time. But we, here in Southwest Missouri need to look still farther into this matter. We have grapes equal in quality and from ten to twenty days earlier than Concord which should receive our special attention, because we can get them into a market that is not over supplied as we generally find it later on. Then again we have varieties, many of them very much superior in quality to the Concord, which ripen from two to five weeks later.

The practical grape grower will look well into this branch of the subject if he would grow grapes at a profit. There is one matter I wish to call your attention to; and it is a matter, if looked at seriously, that becomes.

A HUMILIATION.

At this time and for weeks past, a visit to any of our grocers in the city, would find grapes for sale grown hundreds of miles north in Ohio and New York, Concord grapes for which our people pay eight to ten cents per pound. Now I wish to assert one thing, and I do so without fear of successful contradiction, and yet it is contrary to the general impression held in this community, and that is that there is not one single grape mentioned in any catalogue in the United States that cannot be grown to as great perfection as regards bunch and berry, right here in Vernon county, Missouri, as in any county in the State of New York or any other State; and as regards quality of the fruit, it is well known that any of our southern grown fruit is richer and better than that grown where they have not so much warm sunshine as we are blessed with in this latitude. This is a carrying of coals to New Castle with a vengeance, particularly when we have most excellent varieties of grapes.

that would ripen nicely to supply the market at this late season which our northern growers cannot raise at all because of not having a long enough season to ripen them. Here is one immense, unoccupied field that should receive the close attention of every fruit grower who desires to develop the resources of our State in this particular branch of horticulture.

TWO IMPORTANT POINTS.

In planting vines I would particularly impress on your minds two point's that I consider vital. Land is cheap, give vines plenty of room, twelve feet apart each way, is not far from the right distance. This will give room for a free circulation of air and will be found better after the vines have attained age. Another vital point is to plant good, strong, two-year-old vines, and plant them deeply. This is essential to get the main body of the roots low enough for perpetual moisture, and also low enough to be out of the way of the passing cultivator. To plant deeply of course it is necessary to plow deeply in preparing the ground for the young vines.

HOW TO CULTIVATE.

In cultivating vines, I don't know that I could give any better instruction than to insist that you should cultivate often enough to keep weeds in subjection. I look on weeds as a sort of dispensation of Providence to cure a man of laziness. Just keep the weeds down in the vineyard by stirring the ground, the vines will take care of themselves if you take care of the weeds.

The rule is just as essential to vines at ten years old as at one year old.

HOW TO TRAIN VINES.

It is hard to tell on paper how to train and trim a grape vine, to obtain the best results. Particularly hard for me as I am by no means certain I know how myself. But in raising grapes for market, there is one very important object to be held in view, and that is both the size and bunch of the berry. It is impossible to obtain fine, large, perfect bunches only from strong young canes. To do this it is necessary to renew each year from the base of the vine, and this is about one of the hardest things a vineyardist has to accomplish. I believe that the market of the future will be managed on some such plan as this, instead of

planting vines 12x12 feet apart they will be planted 6x12 feet, one-half the vines in each will be allowed to bear fruit, the other half only be allowed to raise young canes for next year's bearing wood, alternating each year. I believe by some such a system finer fruit could be obtained, than by the usual process now pursued. In raising grapes for wine, I take it that it is not so important that we should have extra perfection either in bunch or berry. But in raising grapes, or for that matter anything else for market, quality, not quantity, is the important consideration. Vines should not be allowed to bear fruit the second season, at least not more than a bunch or so on the strongest vines. The young vines of the first year's growth should be cut back to two buds, vines should be trimmed not later than February, because of bleeding as soon as sap starts in the spring.

The canes of the second year's growth should be pinched off when reaching a height of six feet, throwing the growth into laterals. It is on these laterals you may look for fruit another year, but it will be found advisable to cut them back two or three buds each. The third year you may expect a crop of fruit. Care should be taken not to let the young vines overbear; would advise leaving more bearing wood than was necessary to yield the amount of fruit desired, but would cull out all small and defective bunches, and leave no more than the vine was able to ripen perfectly. A strong, three-year-old vine will yield ten pounds of grapes, and thirty bunches of Concord should weigh ten pounds on an average. The first crop may be grown on stakes, but after that it will be found advisable to use trellis. Three wires will make a satisfactory trellis; the top wire should be six feet from the ground. The rows should run north and south, so that the sun can get at both sides of the trellis.

IN PICKING AND HANDLING

grapes for the market too much care cannot be taken; care should be taken not to mar the bloom on the grape, its greatest beauty. In sorting, all unripe, cracked or otherwise defective berries should be removed. Mark your name on the package plainly, and don't put anything inside you are ashamed of. As a rule it don't pay to ship fruit that the grower is not proud to acknowledge as his own. That old adage that honesty is the best policy, is particularly true in the fruit business; in fact it is the only policy to tie to.

You will understand that in the limits of an ordinary essay it is impossible to treat this subject only in a general way ; there are dozens of details relating to this particular branch of horticulture, any one of which, if treated thoroughly, would wear out your patience, not to say anything of the time required. Planting, cultivation, training, selection of varieties, marketing, winter protection, grape rot and other diseases of the grape, all these subjects must be thoroughly understood before one can make a complete success of grape-growing. To do so, one must read everything that comes to hand on the subject and hold fast to that which is good. To the beginner would say, that in this as well as in everything else, where there is a will there is a way.

CAN GRAPE GROWING BE MADE PROFITABLE ?

The answer to this depends so very much on the man who attempts it, the policy he pursues, his stick-to-itiveness, etc., that it is hard to say. This much can be said, all over one cent per pound that can be obtained for grapes after taking out cost of package, freight and commission will be found to be profit. If grapes are given half a chance, a well established vineyard should produce about 10,000 pounds per acre, that is, a vineyard is as certain to produce that as the same acre would be to produce forty bushels of corn, one year with another. The profits on the crop would so very much depend on the quality of the fruit, time of ripening, how it was handled, etc., etc., that, were two vineyards planted side by side, one might pay a net profit of from three to five hundred dollars per acre, and the other not pay a net profit at all. And for that matter this is not particularly different from almost any other crop; there is only one right way to do a thing, but about a thousand million wrong ways, some worse than others. But any man with common industry and common sense can surmount all the difficulties he is likely to encounter in growing grapes, and will, likely, make a fair success of it.

The lamented Josh Billings very wisely said "that it was better to know little than to know so blamed much that wasn't so." So for fear I may be giving you a lot of facts that isn't so, I give way to those better qualified to speak.

THE AMERICAN GRAPE IN FOREIGN COUNTRIES.

BY G. E. MEISSNER, BUSHBURG, MO.

Editor Rural World:

The devastation of the vineyards of Southern France by the Phylloxera, and the subsequent reconstruction of these vineyards by means of resistant American grape roots, are facts which are probably well known to most of your readers, but it may interest them to know that France is not the only foreign country where American grapevines flourish, and where they are becoming of growing importance.

While nearly all European countries, outside of France, are still closed to the introduction of either rooted vines or cuttings, they do not bar our seeds, and in this form the American vine has been introduced and has furnished millions of phylloxera-resisting grafting stocks to the grape-growers of Italy, Spain, Portugal, Austria, Hungary, in short all the South European nations, and to their provinces on the Mediterranean shores of Africa. But not content with crossing the Atlantic, the American vine reaches across the Pacific, and is cultivated in Australia, New Zealand and the islands of the Pacific ocean. Even South America is drawing upon the United States for grapes, and our American vines are cultivated on the foot-hills of the Andes in Chili and Peru, as well as in Brazil and the Argentine Confederation. In some of these countries they are planted quite extensively, and there are some large vineyards of Isabella and Catawba. Of late years there has been quite a demand from South America for our best American wine grapes especially for the varieties belonging to the *Aestivalis* class, such as Cynthiana, Norton's Virginia, Herbemont, Cunningham, etc., which seem to be peculiarly well adapted to those countries. As a proof of this, I might mention that the orders, which our house has received this season from South America, (from governments as well as from private parties), cover nearly 15,000 vines of the above named kinds, besides some scattering of other of our choice varieties.

The knowledge of the fact how our American grapes are appreciated abroad, should be an encouragement to our own grape growers, as it

must show them that our American native grape has not only generously come to the rescue of the old "Vitis Vinifera" in Europe, and by furnishing it with a vigorous phylloxera-proof root, has given it a renewed lease of life in those countries, where otherwise it would have been doomed to annihilation, but that is also making its way into those foreign countries - where grape culture is as yet a comparatively new industry, and where it enters into successful competition with the grapes of the old world.

If in Europe the purpose served by our grape is less in the direct production of its fruit, and more in the means of furnishing a healthy root to its delicate European sister, this can be easily accounted for by the fact the Vitis Vinifera has been cultivated there for thousands of years, and consequently is cherished by the people, who will not so readily change their inherited taste for its fruit and its wine.

But for an American taste, some "connoisseur" might perhaps say for an "uneducated taste," the spicy, fruity, rich flavor of a good American grape will generally possess more charm than the more delicate flavor of Vitis Vinifera, which some would consider rather insipid. "*De gustibus non est disputandum.*"

The fact remains, however, that even in this direction great improvements have and are being made, and we have now already American grapes and American wines, which need not fear to enter the lists with those of any foreign country. The greatest drawbacks to American grape culture hitherto have been the dreaded fungoid diseases of

GRAPE MILDEW AND GRAPE ROT.

They have prevented the successful and profitable cultivation of our choicest table varieties throughout a large section of our country, a section where the longer and warmer summers are more favorable to just such varieties, which do not come to their full perfection in the more northern grape regions, which are favored otherwise by their comparative freedom from those fungoid pests.

But baneful and discouraging as these diseases have been, the question of successfully overcoming them bids fair to find its solution. The appearance in Europe and notably in France, where grape culture forms one of the vital national interests, has caused them to be studied and investigated in all their details, in order to discover the means to combat them, and with apparent success. If the government and scientists of France have been the first to obtain results in this direction, our own Department of Agriculture, under the direction of our present

eminently able and efficient commissioner, Norman J. Colman, deserves none the less the thanks and honest appreciation of American grape-growers, for the dissemination of advice, knowledge and instruction on this subject, as well as for the untiring efforts and experiments, which it has made and caused to have been made in so many different sections of the country. If the reports of these experiments do not yet show an entire and uniform success in all cases, they show so much good results that we are justified in the belief that the question of the successful treatment of these fungoid diseases will before long, find its entire and satisfactory solution. Gov. Colman deserves all the more credit for his efforts in this direction when we consider that grape culture, as yet, forms but a minor factor in our agricultural industries, unlike the vastly more important interests which it serves in France.

If, however, grape culture is as yet a minor factor in our Agricultural wealth, it is already an important one, and one which is in a healthy state of development, and I can see no reason to fear for its future. With the means of overcoming the black rot and mildew, the intelligent grape grower can be successful throughout an immense stretch of territory, where heretofore his efforts resulted in failure, and as to overdoing the business by an overproduction of fine fruit, I think we need have no fear of such a result for a good many years to come yet. An increased supply will create an increased demand and consumption, and finally, the grape, unlike all other fruit, with the exception perhaps of the apple, will admit of being used in so many different ways. It can be eaten fresh or dried, it can be canned, made into jams, jellies, marmalade, preserves, butter. It can be pressed for its juice, and this again can be converted to so many different uses, and last, but not least, it can be made into a pure wholesome light wine, and this use, if you will allow me the remark, if it were as universal here, as it is in the wine growing countries of Southern Europe, would do more towards the true solution of the temperance question, than all the prohibition that can be agitated or enacted.

I hope you will pardon my digression from the original subject of "The American Grape in Foreign Countries," from which the interest for our good cause, American grape culture in America, has perhaps led me home too soon, but I would not wish to presume on any more of your valuable space to-day.

GRAPES.

A. KIBLER, CARTHAGE.

If you have grapes of the right kind, you will be supplied with grapes from July 15th, (Early Victor), till October 1st, (Highland), and if you have strawberries, raspberries, blackberries, etc., you are supplied with berries from May 15th until October 1st, of your own, all healthy, and delicious fruit.

Best locations for Southwest Missouri, are north, northeast and east, on level ground, but never south or southwest, neither low, wet land.

PLANTING AND PREPARING OUR GROUND.

A few years ago we used to plant grape vines by making a hole about three feet square and plant them in by filling a little surface soil down first; but experience has given us a better and easier way of planting.

First. Prepare your ground in the fall; spread some well-rotted manure on the ground, but no fresh manure. Plow that deep and turn it under. If you aim to plant in the fall, which, I think, is the best time, the ground is in better order, and you have more time; then go ahead with your work, and harrow it well. Then lay it off straight with a two-horse plow, as deep as you can; have your rows north and south, (if you plant such a strong grower as the Concord, Clinton, Ives, Perkins and Elvira, you must plant ten feet apart in the row, and eight feet between the rows; takes about 550 vines to the acre, such as Iona, Moore's Early, Delaware, plant 8x8, takes 700 vines.) Run twice in the same furrow, one up and one down, when you come back you have a good, wide furrow; then take a sub-soil or shovel plow and run twice in it, too; then run crossway with the same plow; then in the crossing of each furrow plant your vines; the soil may have to be tak-

en out a little with the shovel, so you can lay out the roots well in every direction; then plant, pressing the soil down with your foot; if it is in low, bottom land, 8 to 10 inches is deep enough, on upland, 12 to 15 inches, ought to be planted; drive down some small stick, about 18 inches long, to each plant; then cut all the plants back to one eye or bud, even with the surface of the ground; then take your plow and throw a furrow on each side of the plants and cover some. Next spring uncover them with your hand; be careful, don't use a hoe you might injure the bud. Then you can plant two rows of potatoes, the same time you are cultivating the potatoes as well as the vines. They should be cultivated and tended, the weeds kept down for the first two or three years, like a young orchard or corn. You don't need to tie them up on sticks if you don't want to; by allowing them to lay on the ground the first season more vigorous canes will be obtained. In the fall after the leaves are all off, cut back to two buds; cover the short canes with some earth before the ground freezes. If any vines have died, fill out again during the fall and winter, and get your post and trellis ready. Put the wire up so it runs north and south—we have more south wind in summer. In the spring remove the earth from the vines—as soon as danger from frost is past—then cultivate the whole ground, plowing between the rows from four to six inches deep, and carefully hoeing around the vines; but don't work in them while wet. You can plant one row of potatoes every season for five or six years, by manuring it every year a little with some well rotten manure. The second summer a shoot is produced from each of the two buds left the previous fall; tie them neatly to the post or trellis, and let them grow about four or five feet, then pinch the leaders off; then they will throw out laterals or arms. In the fall cut the main stock back about three or four feet, and the laterals back to the buds from the main stock. If you had two canes from your vine, you can lay one down early in June, covering it with mellow soil about two inches deep, leaving the ends of the laterals out of the ground—such as Delawares, Cynthiana, Norton's Virginia, and many others that do not grow from cuttings. If you have tender varieties, take them from the trellis or wire and lay them on the ground, and cover with straw, corn stalks, hay or earth in the fall; it will pay you to keep them from freezing. The third season uncover and tie the canes to trellis, for which use soft string, such as calico or golden willow; tie them, and as young canes grow, keep them tied, but in all cases take care against tying too tight, as the free flow of sap may be obstructed. From each of the buds let canes be grown during the season and each of these

canes will bear two or three bunches of grapes, but I would not leave more than one or two bunches; pinch off all poor ones, because if you leave all on, they are very apt to overbear the first season, and it will affect them always afterward. Sometimes, they never come out at all, such as Delaware, Elvira and others.

PRUNING.

The best time is when the young shoots are about 6 inches long , when you can see all the small bunches, pinch with the thumb and finger to just beyond the last bunch, taking out the leader between the last bunch and the next leaf; we now go over all the shoots coming from the arms, and also pinch them beyond the last bunch. Should any of the buds have pushed out two shoots we pinch off the weakest, also take off all suckers that started from the roots of the vine. We can then let our vines alone until after bloom, only tying up the young canes to the wire or posts. By the time the grapes have bloomed the shoots will have pushed from the axis of the leaves on the bearing shoots. Now go over these again and pinch each shoot back to one leaf, so that you can get a young, vigorous leaf opposite to each bunch of grapes ; these serve as elevators of the sap and also protection and shade to the fruit. Remember, our aim is not to rob the plant of its foliage, but to make two leaves grow where there was but one before and at the place where they are of more benefit to the fruit. Remember, too, the knife has nothing to do with summer pruning—your thumb and finger should do all the work, if it is done early ; and don't you commence cutting and slashing the leaves and vines off, until afterward, when they commence to rot, because it won't help it ; the disease is already there, and you might take away the leaves that are good. When you look over the vines, look for bugs and insects and destroy them. You must not plant in heavy wet soil, if you do, the most healthy varieties will become diseased, but some of the diseases infecting our American grape do not result from defects in the soil or want of cultivation. Their causes are, in fact, unknown, except that they are produced by fungi plants, producing mildew, etc., the mildew (*pernonospera viticola*) appearing in frost like white spots on the under side of leaves, hairy as well as glabrous ones, beginning here in Missouri the first of June, fostered by sultry, damp, wet weather, the leaves turn brown in spots and are partially killed, destroying the fruit, the berries shriveling from the base, turning light brown without falling off, and this we call sometimes brown rot ; the black rot (*Phoma Uvicola*) makes its appearance on the nearly full-grown berries, exhibiting in the first stage small, discolored,

whitish round spots, which soon expand in circumference ; the berries turn dark brown, then the berry shrivels and dries up, and turns black. In midsummer, when the weather is sultry and oppressive, thunder and rain storms frequent the horizon at evenings illumined by flashes of lightning, and when the vines are dew-drenched in the morning, then rot appears, and often disappears and reappears with these phenomena ; the black rot don't affect the vines or its leaves the least. Thirty years ago it was supposed that the Catawba was the only grape that was subjected to rot, but now nearly all varieties, except Delaware, Cynthiana, Nortons become affected. The theory that rot is produced by phylloxera, or root lice, is unfounded. We are still hoping that some practical mode to prevent rot or to render the development of the disease impossible may be discovered ; until that is found, we should plant only varieties which are less subjected to rot. I have tried and experimented with about twenty varieties, that I can recommend ; so far as my experience has been here in south-west Missouri the following varieties will show the order of ripening: Early Victor, Moore's Early, Perkins, Delaware, Ives, Empire State, Concord, Pocklington, Niagara, Elvira, Cynthiana, Norton Virginia, Etta, Highland ; these are all good, but such as Triumph, Jefferson, August Giant, Lady Washington, Martha, Hartford Prolific, and some of Roger's Hybrids won't do here in this country or locality : they don't pay for the money, time nor labor on them. Even the copper mixture I used on them did not save them.

PREVENTION OF ROT.

Last spring I received from our Secretary, Mr. Russell, from the Agricultural Department a report on the fungus diseases of the grape, and the following mixture was used with good result :

I have about 300 vines of different kinds, six years old, in bearing. For them I use eight pounds sulphate of copper dissolved in 15 gallons of water, then 20 pounds fresh lime in 20 gallons of water. When the lime has cooled off pour it slowly in the copper solution, mix it thoroughly by constant stirring ; had it prepared several days before using it, in a 40 gallon barrel, had a stick in it and stirred it well every time before using ; commenced putting on May 11th and 22d, then I did not keep correct account when I applied it, but I remember I have put it on every time after a rain—the last time July 6th. I use an old broom with a handle left on about 1 foot long, then sprinkle it on the leaves and grapes, and all. I believe the treatment prevents the fungus from destroying the fruit, because I have 125 vines of the Concord. They

are in the orchard amongst the trees and they have rotted so bad every year that I did not save 25 per cent, and this year I know I saved 95 per cent from them but still I would not be sure because we had a very fair season for grapes. I will try it every year, and would like for everybody that has grapes to try it, and if it is a help it would be a blessing. The cost is not much for the 300 vines. I use 8 pounds sulphate of copper at $12\frac{1}{2}$ cents, \$1; 20 pounds of fresh lime, 10 cents, that makes \$1.10, and 35 gallons of the mixture. A thousand vines would not cost over \$3. Put it on in time—say about the 10th of May—I believe in prevention—then every ten days on up to June 15th. By that time the leaves are all well grown and perfect, then after that about twice a month, unless the weather is sultry, thunder and rainstorms, frequent flashes of lightning, and when the vines are dew-drenched in the morning, then I would put it on as soon as it dried off after a rain, even if it had to be every second or third day.

Another thing I would recommend for the prevention: Cut your vines in the fall season, as you can commence about the middle of November. Then save your best cuttings, put them away in the sand in the cellar or bury them in the ground or plant them right off and mulch them heavy, the way I do. Then go and rake your vineyard, clean off the leaves and cuttings, remove from the vineyard and burn them up, so if any Spores or Fungus are left on the ground from last summer, they will be destroyed.

A few words about some new varieties, such as Niagara, heralded like Niagara herself, as one of the wonders of the world, are no better than the Concord. If the Concord does well in your locality, the Niagara will too, or, vice versa; Early Victor will take a high position as a popular and profitable early black grape. It ripens here July 10th to 15th. It resembles the Hartford, but unlike the Hartford, is a grape of excellent quality, slight pulpliness, small seeds, free from foxiness, and the berry does not fall from the cluster even when overripe. Geo W. Campbell says: "I know of no black so well fitted to take the place of all the foxy abominations (Hartford, Ives, Tolman, Early Champion, Janesville), which have been tolerated on account of their earliness. It is really a very good black grape, with a vine of the earliest and hardiest type of the Labrusca class" and the Empire State is one of the strongest growers I have on my place, and one of the finest and sweetest; bunches large, from six to ten inches long. I had grafts inserted in two three-year old Concords, in the spring of 1887, and this year one had 41 bunches, and the other had 34, and such beautiful color of white with very high tinge of yellow, but it only began to ripen in this

locality with the Concord, and for latter, such as Etta, white, a daughter of the Elvira, resembles it, but has larger berries, not disposed to crack and is superior in quality, it ripens about ten days later. I have also the Highland, the largest and showiest on my place. It is the latest. I had it at the horticultural meeting, September 29th, city hall, Carthage, Mo., and here is what the *Carthage Press* says of the Highland September 26th : "Mr. A. Kibler left with us yesterday some very fine specimens of the Highland grape, which is just now ripening. This grape is unusually large, sweet, and delicious, and is of especial value on account of maturing so late in the season. I believe like Bush a promising market grape."

DISCUSSION ON VINEYARDS.

Mr. Holsinger—We have had a good deal said about "Honesty being the best policy," but the poet says that "He who acts upon that plan is not an honest man."

Mr. Laughlin—Will the gentleman tell us what poet said that?

Mr. Evans—It is like the Dutchman said: "Honesty is the best policy, but it keeps a man mighty poor."

Mr. Murray—I like the papers and I most heartily indorse the idea of more fertilization and more vigorous growth for fine grapes. I agree with Mr. Kinder that it is humiliating to us that our people should use grapes from New York, and pay ten cents a pound for them, when we might grow them at home of better quality, and in greater abundance.

Mr. King—Our home grapes sell higher in Kansas City than those we get from the east.

Mr. Menifee—I want the best early grape and the best late. What are they?

Mr. Evans—Mr. Geiger recommends the Catawba. Can the people grow Catawba on all kinds of land?

Mr. Geiger—Yes, except on wet low lands. They can grow it on the Missouri river hills. It is not hardy enough to stand extreme cold without protection. It stands ten degrees below zero.

Mr. Faith—What are the best varieties to grow for family wine?

Mr. Geiger—The Concord will make a good family wine.

Mr. Bell—I will ask Mr. Geiger what is the Ben Davis among grapes.

Mr. Geiger recommended the Catawba and Norton's Virginia.

Dr. Linsign—I recommend the Concord, Catawba and Moore's Early. I have had a good paying crop for seven years. Moore's is the most profitable with me. It is early, has a large bunch and berry, black, of fine appearance and fair quality. I plow deep, fertilize well and plant ten feet wide.

SECRETARY'S REPORT.

What shall be my report? Where shall I begin? What shall I say? Again and again, dear friends, have we greeted one another in our work. Again and again have we compared our experiences, our successes and failures. Again and again have we met, striving to make each one of our meetings better and better and now we meet with so much unity of feeling, with such a common interest, with such an increased membership and with such an unbounded enthusiasm that it is no wonder that we have good meetings. It is no wonder that our meetings are enthusiastic. Do you wonder then why it is that every member of our society looks forward to these annual gatherings of our society with so much pleasure and profit?

The fact is simply that we are stepping upon a higher plane of horticulture year by year; we are learning new facts day by day; we are grasping some of the wonderful opportunities which are opening to our view; we are realizing the wonderful possibilities of our loved profession; we are beginning to see the magnitude of this fruit business; we see before us a field as broad as our land—avenues opening in all directions for the young men and women, and positions ready and waiting with no one to fill them.

No wonder then that we are enthusiastic in our profession, when we hear calls on every hand for our young people to become horticulturists, not in the narrowest sense of the word, but in the broadest—good, intelligent, honest fruit growers, enthusiastic, educated florists, systematic judicious vegetable gardeners, skillful, well posted, live, wide-awake landscape gardeners. These, all of these, come under the domain of horticulture, and dare you to say that there is no opportunity for a young man in the line of horticulture.

But listen. I tell you there is no more noble occupation in all the realms of business and professions in all this broad land of ours than that offered by horticulture. There is no better opening in any line of business than horticulture offers. There is no more lucrative positions offered anywhere than those offered to the entomologist, botanist and horticulturist. Will you tell me there is no chance for growth in knowledge—that the way for study is blocked up for the horticulturist? I say that it presents greater inducements and opportunities than can be found in any other profession.

Our agricultural colleges are calling to-day all over the land for good botanists, entomologists, landscape gardeners, florists, and fruit and vegetable growers, in fact horticulturists, which embraces all of these.

And so it is with the fruit interests; we want good intelligent, enthusiastic, systematic, judicious fruit growers, on the cheap, rich, fertile lands of Missouri; men and women two, who will plant good large commercial orchards all over our state, who will use as much judgment, as much brains, as much money, as do our other businessmen, as do our cattlemen, horsemen, sheepmen, or merchants even, and then we will see this wonderful state of ours produce more fruit than is now grown by any state of the union.

And this country, where we now meet, I should like to see our fruit growers plant every tree of profitable winter apples, which could be found in our nurseries, and plant them in large lots of 40, 80, or 160 acres, and it will be worth more to them than any of our mines of South Missouri.

But we are here to learn. What have you learned the past year? What has been your success? What of your failures? How could you have improved on your plans? How of the marketing? Did any of your varieties succeed beyond your expectations? Have some of them disappointed you? Would you now plant the same varieties you would one year ago? Has the transportation problem been a bugbear? Did the express companies eat up all the profits? These and a hundred other questions will have to be answered right, before you can take many advance steps in fruit growing.

The fruit interests of our state — what a wonderful crop we have had surely. The strawberry crop, the raspberry, the blackberry, the cherry and peach in some portions, the apple, a crop beyond anything the state has ever had before, and such perfect fruit, so beautifully colored and of such immense size. The fruits of our state have paid to any one, splendid returns, if they have but judiciously handled them. Many a small fruit orchard has paid our farmers more than all the rest of the farm, in fact as one of our members say "it takes the fruit farm to keep up the other." Our fruit interests run up into the millions of dollars this year, and if any one has failed to make money, it is because they have failed to properly dispose of their fruits.

Our society and its interests has been growing and improving as our work has become known, and as more and more of our fruit men become interested; all that is necessary in our work is to have the united effort of all our fruit growers, to advance our cause in the state. As our Horticultural societies increase in members we find new persons interested in the work and men are becoming known as particularly interested in fruit.

We have now eighteen Horticultural societies in the state, most of them doing good service, and in active work; and wherever this is done we cannot fail to find the fruit interests increasing in importance and in influence.

Phelps county, headquarters at Rolla, has organized with thirty members, and with the wonderful advantages of fruit culture in that county, I look for a live, wide-awake society. Not only in apples, but also in peaches, Phelps county should take a front rank. I believe that the fruit interests are the most important matters of that county, and every effort should be made to develop them.

Since coming to this meeting, I am glad to learn that Laclede county has been organized, and we will now have a county society at Lebanon, due to the efforts of our friend, A. Nelson.

You have heard what this Ozark region will do for our fruits, and the society has a "big job" on its hands to properly develop and direct this interest.

It does me good, and you good also, to thus see the influence of our society spreading and developing, until the prophecy of our president will be fulfilled, and we will see a society in all of our best counties.

OUR TRANSPORTATION PROBLEM

is one of the most important things we should attend to. If our railroads and express companies will only use the liberal policy that the matter justifies, then we can cover hundreds of thousands of our acres with orchards, but if they will take every dollar of profit there is in the business, then it is only a question of a short time when they will kill not only what enthusiasm there is in our state, but will prevent also very much new planting.

If our railroads and express companies will treat us only as well as does the Illinois Central, the southern part of that state, they will see in a few years, an interest developed, many times greater than that of Southern Illinois.

The committee on transportation have a "huge job" on their hands, but it will never be regulated unless we as a body, take hold of it. United effort, continual work, earnest talk, and yet some time may elapse before we get what we want and what we deserve.

Officially it must be presented to the managers of our railroads, not only by our state society but by every local society, by every farmer's club, by every grange, and by every wheel organization of our state.

I find our railroad men willing to do what we want when we can show them that it is to their interest to do so, and it does seem to me that I could satisfy any one of them in five minutes that such is the case. The only hard thing to do about it is to get them to look at the matter in the right light. It will take persistent effort, time and time again to succeed however. Like everything else, it is worth the time and trouble if we only succeed in the end.

OUR FRUIT SHOW

I have reported upon in a special paper. I believe that there never was a better show of apples brought together; I believe there never was a more successful display; I believe that a collection of fruits never did as much good as did this one for the State of Missouri. Thousands upon thousands saw but to admire, saw but to commend, saw but to be instructed and enlightened as to the capabilities of our state. Our society had been saving some money and found this a good way of using it.

About eight hundred dollars have been used for this purpose and it ever money was well spent, it was this. The financial report will be given by our treasurer and the bills for the same. The expenses of the secre-

tary's office for the past six months have been not quite as much as usual. Some of our railroads begin to see that we are helping them in our efforts to promote horticulture, and they are getting more liberal with us. I hope to see the day when they will treat us as do the Georgia railroads their horticultural society. At their annual meeting every member of their committees, officers and helpers get a "pass" to the place of meeting, and the officers at any time have free transportation over the roads of the state. Our roads can afford to do much for us also; the fruit show was a better advertisement than they often get for hundreds of dollars.

I cannot refrain from mentioning the very free and open assistance we received from the St. Louis Exposition after they once fully understood what we were doing and how we were doing it. They gave timely aid in many ways, and very especial aid in work of keeping up the display, bringing our fruits up to the room and taking away the waste, assisting us in every way when we called upon them. The letters of commendation from the board of directors and the secretary given in my report on the display, gives the estimation they put upon it. Many and many a one told us that it was the best thing in the building for the state. I have written them to give us their resolutions engrossed on parchment, as one of our trophies, and have received the following from one of the directors:

ST. LOUIS, NOV. 15TH, 1888.

L. A. Goodman, Esq., Westport, Mo.

DEAR SIR:—I have received your favor of the 12th inst. In response would say, that I will give the matter referred to special attention. Mr. Kennard, the President of the Exposition Association, is now east, and it may be three weeks before the matter can be fixed up. I will investigate the matter, however, at once, and in any event it will be attended to in ample time and as you desire.

Hoping that we shall have the pleasure of having you with us at the next Exposition, I remain, with best regards,

Your truly,

C. H. SAMPSON.

FOLLOWING IS A LIST OF EXPENSES

1888.		
June 2.	Fruit Report, bill 1.....	\$ 20.00
July 5.	Murray's expenses, Columbia, bill 2	19.10
"	Goodman's " " " 3	12.20
" 20.	" " St. Louis, " 4	23.25
" 25.	" " Nevada, " 5.....	10.50
Aug. 2.	Post-Office Bill, bill 6.....	40.07
" 10.	Printing, bill 7.....	15.00
" 13.	Expenses to Carthage, bill 8	10.50
"	Express, \$2.15, \$1.00, \$1.00, bill 9.....	4.25
" 25.	Expenses to St. Louis, bill 10.....	21.55
"	Printing, bill 11.....	9.50
Oct. 25.	Express on return matter.....	10.25
"	Delivering.....	2.00
"	Express, \$.95, \$1.00, bills 15, 16.....	1.95
July 31.	Printing, bill 17	6.00
Aug. 16.	Expenses to Clinton, bill 18	8.75
Oct. 31.	Post-Office Bill, bill 19	12.50
Nov. 9.	Express, \$1.20, telegram, \$.60.....	1.80
" 10.	Printing, bill 20	16.00
" 28.	Ribbon, \$2.75, express, \$2.15, expense, \$1.45	6.35
Dec. 10	Express, bill 21.....	5.50
"	Expenses of Delegates, bill 22.....	20.10
"	J. C. Evans, bill 23	12.25
"	Southwest mail, bill 24	7.50
"	R. E. Baily, bill 25.....	28.25
"	Tacks, \$.15, paper, \$1.50, help, \$2.00, nails, \$.25	5.90
"	Baskets, pencils, tablets.....	3.25
"	Plates for fruit.....	7.80
"	Post-Office Bill, bill 26	31.10
"	Express and storage, bill 27	5.00
"	Bill Jasper County, bill 28.....	7.40
"	Self, traveling expenses.....	18.20
		<hr/>
		\$402.65
Received cash of Express Company.....		\$ 7.65
" " D. M. Dunlap, Life Member		8.00
" " Memberships recorded		27.00
		<hr/>
		\$42.65
		<hr/>
Received Warrant, No. 128.....		\$360.00

The series of Farmer's Institutes to be held all over the state should receive notice of our society, and some one should be appointed to attend to them in different parts of the state.

Following is the list, and some one of our good fruit-growers in the locality should attend to them

In all probability their expenses will be paid by the state board.

Paris, Monroe County, Monday and Tuesday, Dec. 10-11; 4 Sessions.				
Bowling Green, Pike County, Wednesday,	"	12,	3	"
Troy, Lincoln County, Thursday,	"	13,	3	"
Ironton, Iron County, Friday,	"	14,	2	"
Poplar Bluff, Butler County, Saturday	"	15,	3	"
West Plains, Howell County, Monday,	"	17	3	"
Ash Grove, Greene County, Tuesday,	"	18,	3	"
Billings, Christian County, Wednesday,	"	19,	3	"
Marshfield, Webster County, Thursday,	"	20,	3	"
Lebanon, Laclede County, Friday,	"	21,	3	"
Huntsville, Randolph County, Monday & Tuesday,	"	24-25,	4	"
Pattonsburg, Daviess County, Wednesday,	"	26,	3	"
Stanberry, Gentry County, Thursday,	"	27,	3	"
Maryville, Nodaway County, Friday,	"	28.	3	"
Savannah, Andrew County, Saturday,	"	29.	5	"
Amity, DeKalb County, Monday,	"	31,	3	"
Hamilton, Caldwell County, Tuesday, January	I,	2	"	"

Printing our report I hope may be done at once, and the following letter from the state printer gives us the promise :

JEFFERSON CITY, Mo., Nov. 12, 1888.

L. A. Goodman, Esq.:

Replying to yours of recent date, have to say that so far as we know now we can commence on your report and finish it up within the required time. We are particularly anxious to get everything possible out of the way before the legislature meets.

Yours, etc.,

TRIBUNE PRTG CO.

INFORMATION FOR SETTLERS.

I have thought of a plan for giving some information to those wishing to settle in our state; and that is, to take the lines of our principal railroads and have some of our members write up the advantages of their county for fruit growing and an estimate of the amount of fruit produced in that county. With this publish a small cut showing the line of the road through the state and counties, and with this description of each county through which the road passes, we could give a very fair idea of that county for fruit growing and marketing. Let this be done with all our important lines and I think it would be just the information needed by the person seeking a home for growing fruits.

(Following is a note from one of our callers):

Mr. L. A. Goodman:

DEAR SIR—Thanks for your marked courtesy.

I am pleased to remark that it is surpassed only by your brilliant display of your honored society so ably represented by you and your associates.

Yours truly,

S. TWITCHELL.

Landed at St. Louis A. D. about 1818; was 5 days enroute to Alton, Ill., (25 miles), rather slow; landed at Westport about 1828, I consider this the very center of the agricultural world, and predict that there are men who will see the seat of our young giant nation will be very near your time-honored city.

S. T.

St. Louis, Oct 14, 1888.

Also the following from one of the largest peach growers of Illinois, whom I asked to give a list of 10,000 peach trees for planting for profit. Two thousand E. Barnard, 2,000 Thurber O'Mixon, Family Favorite, 2,000 Elberta, 2,000 Piquetts, Late, 2,000 Reeves' Favorite Christiana Henrietta.

G. W. ENDICOTT,

Villa Ridge, Ill.

The meetings of our sister states are occurring now each week. At the same date of our meeting, the Kansas State Society and the Indiana State Society meet, the one at Hutchinson, Kas., and the other at Indianapolis, Ind. A telegram of greeting has been sent to each.

The Illinois and Iowa societies meet next week, one at Alton and the other at Council Bluffs. Some one should attend if possible.

The knowledge we have gained in horticulture the last few years we owe to our societies and the agitation of the question; and questions of great importance which our scientists are now taking up gives us the belief that we are advancing year by year in this knowledge and that this knowledge is doing us good.

Now then, dear friends and members, I can but congratulate you on the success of our society. We have worked together with an earnest will, hearts full of love for our cause, an unbounded enthusiasm, and with a perfect unity. As long as we follow in this plan of working just so long will we be successful and no longer. It takes but little discord and friction to create a disturbance and a little bad seed sown causes trouble. The wonderful opportunities of our state for development will give us all the we can do for years to come. Our state is not a state in which only a small portion of it is adapted to horticulture, but from the very northernmost point to the very southern limit, from the east to the west, *all over* our grand old state we have the *land* and *climate* which will give beautiful returns if but properly developed.

The last and best made state (geographically) of the union offers to you and to every earnest worker of all the other states, the best opportunity of their lives. No state of nearly 300 miles north and south and east and west can begin to offer the horticulturist such a rich field for labor.

“ Let us go up and possess the land for we be able to occupy it.”

L. A. GOODMAN, Secretary.

REPORT OF TREASURER

SPRINGFIELD, Mo., Dec. 10, 1888.

D. S. HOLMAN, TR., IN ACCOUNT WITH MISSOURI STATE HORTICULTURAL SOCIETY.

1888.

June 10.	To balance in treasury on settlement at June meeting.....	\$ 371.18
" 30.	" Warrant on State Treasury.....	1,000.00
Oct. 20.	" Cash receipts on sale of fruits at Missouri Fruit Show.....	24.55
Nov. 1.	" Warrant on State Treasury.....	500.00

		\$1,895.73
June 22.	By cash paid warrant 124.....	\$ 20.30
Oct. 29.	" " 126.....	687.78
Dec. 10.	" " 128.....	360.00
" "	" 129.....	400.00
" "	" 131.....	184.50
"	By balance in treasury.....	243.15

		\$1,895.73

EXPENSES OF FRUIT SHOW.

1888.

Aug. 5.	Expenses to St. Louis.....	\$ 3.70
"	Board of Evans and Goodman.....	15.80
"	Return	2.00
"	Paid Murray.....	10.00
Aug. 28.	Express on Reports.....	1.25
"	Expenses to St. Louis, L. A. Goodman.....	2.00
"	Express, Vernon County	5.35
"	" Bates County.....	5.00

Sept. 1.	Simmons, hardware.....	\$4.75
"	Cuples, woodenware.....	10.80
"	Wm. Barr, muslin.....	11.50
"	St. Louis Paper Company	2.75
"	Mail and express.....	.50
3.	Express from Holt County.....	5.35
"	Potting earth.....	2.50
"	Cuples, woodenware.....	5.40
"	Express (Olden).....	3.00
"	" (Weston).....	1.60
"	Cloth, 50 yards.....	2.50
4.	Express, Nevada.....	.50
"	" Mercer County.....	2.05
"	Drayage on Evergreens.....	.75
"	A. J. Blake, (work).....	12.00
8.	Express, Nevada.....	.35
"	" St. Joe.....	1.80
"	Postage.....	2.00
"	Water Cooler.....	3.25
10.	Expenses to Creve Cœur.....	2.00
"	Frames for Diplomas	5.00
"	Express.....	1.50
"	Table, chairs and carpet.....	9.00
"	Painting pagoda and signs.....	75.00
"	340 yards festooning.....	34.00
"	150 " "	18.75
"	Blake, for work.....	3.00
"	Hotel bill of Goodman and Murray.....	25.90
"	Ink, pen, stamps.....	3.65
14.	Framing Certificates.....	9.40
"	Express charges, 2 barrels and 4 baskets, St. Joe.....	2.05
"	" " 1 box, from Weston.....	1.25
"	Freight and drayage, 7 barrels, from Boonville.....	3.13
"	1 dozen pencils, 35 cents, and stamps, \$1.....	1.35
"	Express charges, from Thayer.....	4.00
"	Register, blotter and pens.....	1.75
"	Star-Sayings.....	.12
"	Express charges, 1 barrel, from Butler.....	1.20
24.	Map of Missouri.....	12.00
"	Paper to shade map.....	.20
25.	1,000 envelopes, \$3, stamps, \$2.....	5.00
"	Express charges on box from St. Joe.....	.55
"	Cash sent to Murray.....	25.00
"	Express charges on fruit.....	1.75
26.	For 500 circulars.....	3.50
"	" tablets, mucilage, etc.....	.80
"	Express charges on 1 barrel, from Weston.....	2.55
"	For postage stamps.....	3.30
27.	Hotel bill for Goodman and Holman.....	39.75
"	To Murray.....	4.00
"	Express charges, 9 boxes and 1 barrel.....	3.30
"	For Post-Dispatch.....	.15
"	Drayage from Fair Grounds.....	1.00

Sept. 14.	L. A. Goodman, return to Kansas City.....	\$2.25
" 17.	Fare to St. Louis.....	3.75
" 20.	Paid Mallinckrodt.....	1.00
"	Express, 65c., 75c., 75c.....	2.15
" 30.	200 <i>Globe-Democrat</i>	6.00
"	Express, Bates.....	.25
"	" Weston	1.30
"	" cold storage.....	.50
"	" New Florence.....	.40
"	" Holt County.....	1.65
Oct. 1.	Springfield.....	4.90
"	Rockville.....	.50
"	Nevada.....	1.70
"	Fulton.....	1.70
"	Olden.....	1.00
"	" Bates 25c., cold storage, 50c.....	.75
" 3.	Telegram to Sarcoxie.....	1.05
" 4.	Paid Mallinckrodt.....	1.50
"	" postage.....	1.50
"	" express, Wright City.....	.50
" 5.	A. C. Hammond.....	10.80
"	W. M. Sammuels.....	7.50
"	F. Holsinger.....	9.50
"	E. A. Reihl.....	3.00
" 5.	Express, Lebanon.....	1.90
"	" "	1.70
"	" Frisco route.....	1.50
"	" Kansas City.....	2.50
"	" Russell75
"	Board, &c.....	25.00
" 10.	Expenses to Kansas City.....	2.25
"	Express, Kansas City.....	2.40
"	Expenses of Mallinckrodt	1.25
" 11.	" Springfield.....	2.95
"	" Mercer County.....	2.25
"	Carpenters paid.....	8.00
" 13.	Paid help	5.00
"	Signs and postage.....	5.35
" 22.	Photograph of show.....	18.00
"	Saw.....	1.35
" 23.	Bradley, for drayage.....	5.00
"	Help	5.70
"	Evans' expense bill.....	29.40
"	Evans' hotel bill.....	30.90
"	Goodman's hotel bill.....	18.50
"	To Evans, which amount he had paid out.....	10.00
"	For telegram.....	.40
"	Holman's expense bill.....	24.70

\$687.78

EXPENSES FOR WHICH THERE WAS NO WARRANT DRAWN

1888.

Dec. 10.	Express charges paid at late meeting.....	\$ 21.70
"	For stationery.....	1.05
"	Paid Murray for Laughlin.....	10.00
"	Laughlin's hotel bill.....	4.10
"	Gano's hotel bill.....	4.50
"	St. Louis Refrigerating Company, storage.....	5.00
"	Hoke Engraving Company	6.75
"	American Engraving Company.....	30.00
"	Premiums.....	74.50
"	My expenses.....	13.70
"	Murray's expenses.....	13.25

		\$184.50

To the President and Members of the State Horticultural Society:

Having examined the accounts and vouchers of the secretary and treasurer, we find them correct, and so far as we are able to judge, the financial affairs of the society have been judiciously and economically administered.

HENRY SPEER,
N. F. MURRAY,
Z. T. RUSSELL,
Finance Committee.

DISCUSSION.

Mr. Evans—We made a great effort to have every part of the state represented in the St. Louis Fruit show. Our success can be seen by looking at the map. All the counties colored red had exhibits in the show.

Mr. Holman, after reading his report spoke of the many items of expenses that had to be incurred by the officers of the society at St. Louis, and said that they had made all the bills as small as possible.

Mr. Evans—It required a great deal of work, much writing, and printer's ink to work up that great fruit show. We worked and talked for over three years. *Colman's Rural World* did more than all the rest of us together. We tried for a whole week to get the managers of the exposition to give us the room and fit it up for us, and were ready to go home in disgust; but we went to the *Rural World*, and its editor said that it would not do to give it up, we will go and see those managers separately at their homes or places of business. And the result you all know. I recommend the *Rural World* to the farmers and fruit-growers as one of the best and most reliable papers published.

Mr. Holman—I move that a vote of thanks be given to the *Rural World* for its part in this work.

Mr. Holsinger—I second that motion, and move that we send along a barrel of the finest apples on these tables with the vote of thanks.

Carried unanimously.

Mr. Holloway—I move that a vote of thanks be extended to every county court in the state that made an appropriation for the benefit of the Missouri Fruit show.

Carried.

Secretary Goodman stated that the law found in Section 4057, revised statutes, gives them the right to appropriate \$150 in premiums or for displays annually for any purpose that will benefit the county.

Mr. Murray—I know something of the work performed to make that Fruit Show, and I am agreeably surprised to find that the cost was less than \$700. I supposed it would be \$1,500. Thanks are due to our worthy secretary, L. A. Goodman. He worked hard to get everything done as cheap as possible, doing much of the work himself, I have positive evidence that men have come to seek homes in our state from the effects of that show.

ANYTHING FOR THE GOOD OF THE SOCIETY.

Mr. Goodman—I have received from John B. Gill, of Springdale, Ark., one hundred 1-year-old Coffelt apple trees, tied in bunches of five each, which he wishes to be distributed to the members of the society residing in different parts of the state, for trial. You may propagate from these for your own use, but not to sell. Mr. Murray will please distribute the trees.

Mr. Holman—Another man from Springfield offers and sends one hundred trees to be distributed, provided the fruit committee like the apple.

I move that the secretary quote the statute referred to, in his next published report, so that any member of the society can use it when he wishes an appropriation from his county court for the good of horticulture.

Invitations for the next meeting of the society were received from Brookfield; Springfield, Lebanon and Poplar Bluff, all of which were referred to the executive committee.

FRIDAY, DECEMBER 7TH, 2 P. M.

Report of the committee on transportation was read by secretary, received and adopted.

REPORT OF COMMITTEE ON TRANSPORTATION.

Your committee on transportation find themselves hampered by many untoward circumstances. The subject is a broad one, and its successful solution depends upon the mutually beneficial relations of the producer and the transportation companies.

The producer needs and demands cheap and rapid transit for his fruits; the transportation companies on the other hand very reasonably demand that the producer shall furnish them sufficient business to indemnify them against financial loss, in the preparation of, and the supplying of these facilities. The question then is, are the fruit producers of Missouri in a position to perform their necessary part in effecting this mutually beneficial arrangement? On the other hand, the fact is generally recognized that if rapid and cheap rates were guaranteed, the fruit indus-

try would be greatly enhanced in its every branch, by the accession of many new and enthusiastic recruits to the ranks of producers. The fact is further recognized that each locality can best solve this question to its own satisfaction, and that the State Society can only deal with it in the most general way.

In view of the fact that the work of the State Horticultural Society has, apparently, not received the recognition at the hands of the representative business interests of the state that its importance demands, we would urge the importance of thoroughly ventilating through the press the workings of this society, and in that way indirectly impress upon transportation companies the imperative importance of meeting the members of this society half-way in the furtherance of this most important industry. In addition to this, we would recommend that the state society would memorialize the various railroad and express companies, in the following or similar language, relative to this important matter.

WHEREAS, The Missouri State Horticultural Society has throughout its existence of thirty-one years, been greatly hampered for lack of cheap and rapid transit to the markets of the country for the products of its members; and

WHEREAS, Many individuals who would have gladly embarked in the fruit industry, with their capital and energies, but have been deterred from doing so, for lack of these necessary conditions of success; and

WHEREAS, We recognize the fact that only amicable and generous co-operation between the producer and the carrier can pave the way for the development of this industry, whose possibilities it were hard to exaggerate; therefore, be it

Resolved, By the Missouri State Horticultural Society, that, we are willing and anxious to enter into an arrangement with the transportation companies of this country, that will most speedily and most satisfactorily compass the desired ends; and further, that we the members of this society, pledge our individual endeavors, in our several localities, to secure such amicable and mutually beneficial arrangements with the various transportation companies.

Respectfully submitted,

J. AMES,
C. C. BELL,
J. K. GWYNN,
Committee.

Mr. Robards read a special report on transportation, which was referred to the committee on the subject.

Mr. Goodman—I suggest that every local society pass the same or a similar resolution, and send it to the general managers of the roads over which you send your fruit to market. If you can convince them that it is for their good to make better rates they will meet you half way. Let such resolutions go up from every fruit section that they will see that these people want something. So let the matter come up all around and it will help us.

ELECTION OF OFFICERS.

Mr. Evans requested that he be relieved from the duties of the office, and that some one more capable be selected to fill his place.

J. C. Evans was re-elected and the result was made unanimous by acclamation.

The election of Vice-President being in order, Mr. Nelson moved that the rules be suspended, and that the secretary cast the ballot for N. F. Murray. Carried. Mr. Murray was declared the choice of the society for Vice-President.

Mr. Nelson moved that the rules be suspended and that the Treasurer cast the ballot of the Society for L. A. Goodman, for Secretary. Carried, and Mr. Goodman was declared duly elected Secretary of the Society.

Mr. Murray moved that the Secretary be instructed to cast the ballot of the Society for D. S. Holman, for Treasurer. Carried. Mr. Holman was declared duly elected Treasurer.

Mr. Gano—I move that the selection of the place for the next semi-annual and the next annual meeting be referred to the executive committee. Carried,

The Secretary said that the Society had invitations to hold the summer meeting at Kirkwood, and also at Poplar Bluff and Brookfield.

REPORT ON STONE FRUITS.

Mr. Holman—I called on Mr. Hopkins, of the Committee on Stone Fruits, some time ago. At that time he expected to come to this meeting, but something occurred to keep him at home. He said that all the stone fruits would enter the winter in good condition, and gave promise of a good crop next year, after a very satisfactory crop this year. The trees were not overloaded and we never saw them in better

shape than now. If the winter is favorable we hope to have a half crop to report next year. There are more demands for peach trees in that region than can be supplied.

PEACH CULTURE

DR. E. R. MOREROD, SCHELL CITY.

Peach culture for the last six years has been a failure in Vernon County from the severity of our winters, and everybody seems impressed with the idea that it will remain so for all future time. The writer would state that he has been a resident of Vernon County for twenty-one years; that from his first residence in the county previous to six years ago, there never was an entire failure of that delicious fruit, and has been informed by old residents, that for many years, previous to his advent to the county, there seldom was a failure of the peach crop; and would further add that one season the thermometer fell to twenty-three degrees below zero to his own knowledge, and it was reported at twenty-seven degrees below in the neighborhood of Moundville, in this county, on the same occasion, yet we had fine peaches that season. Now, the writer does not wish to convey the idea that this is always the case, but admits, that when the thermometer falls to sixteen degrees below zero, one may reasonably anticipate a failure or great injury to the crop. But the writer protests against the idea that peach culture must remain forever a failure in this section, for experience in the past demonstrates that seasons, like history repeat themselves. It is a well-known fact that certain classes of epidemics repeat themselves at very regular cycles or periods of time. The writer feels confident, that indulgent nature will turn the card board of the weather round sooner or later, that we may indulge in ripe, juicy peaches, as of yore. The object of this communication, however, is to bring to the notice of this society the writer's experience that may not be new to old veterans of horticulture, but may be of great benefit to those who are novices in that line, and who desire

or intend to set out a peach orchard. Never attempt to form a head for the tree when setting it out, but cut it straight as a broom stick and let it form a head at its own leisure; do not leave any side branches, even if they be but two or three inches long, for when they become heavily laden with fruit or exposed to severe storms the branches break and split the stem of the tree oftener than pressing clear to the ground. The writer has had an annual loss of seven to eight per cent of trees, owing to this cause alone. 'Tis said, one can learn something from failures as well as from successful efforts, and, in order to arrive at the truth, it is as well to confess our mistakes as to trumpet our success, and if this communication should save one or two from committing the same blunder and meeting with similar experience, the writer will be amply repaid for the trouble of writing the same.

THE HOME OF THE PEACH AND ITS TREATMENT.

W. G. GANO, OF THE OLDEN FRUIT FARM, HOWELL COUNTY, MO.

What a wonderful country we have for fruit culture; no nation possesses such marvelous privileges, no other has made such progress in pomology.

Being situated on the southern slope of the Ozark mountains, we are protected from the severity of the north and northwestern wintry blasts, and by a succession of mountain ranges in Arkansas on the southwest from the hot blighting winds of July and August. Here, we have a district, as large as the German Empire, where both soil and climate are congenial to the growth of the peach, where no yellows, that formidable and dreaded disease, that baffles and blasts the prospects of the grower of this luscious fruit, ever invades. Where the much-dreaded enemies of the fruit tree, the borer or gouger and curculio are seldom found; where nothing hinders the growing of millions of bushels of this

blessed God-given fragrant fruit of Paradise ; I say where nothing hinders except the supreme laziness of man.

It is a painful fact that peach-growing, by the settlers of this most favored region, is but a sad mockery, for they know of nothing and plant nothing but seeds of the most inferior kind, and such a thing as a large, melting, delicious, wealth-bringing, beautiful peach these growers never beheld; hence the newspaper report of thousands of bushels of peaches rotting in Howell county this year, were not peaches, but seeds ; and they are there yet, and will measure as much and bring as much in the market to-day as in their season.

It is clearly evident, from years of experience and observation, that orchard land requires close and prompt attention in Missouri as well as in California or elsewhere, and that in small or extensive operations thorough cultivation as well as manures, such as barn-yard, wood-ashes, green manures, and to a certain extent some of the commercial class, are required to maintain the vigor of tree and quality of fruit. The true system of culture is old, but the mode of doing the work is constantly changing with the introduction of new and improved implements, and with the ease and rapidity with which the work can be performed, leaves no excuse for neglect. This subject naturally suggests location, preparation of soil, distance between trees, varieties to plant and treatment.

Location should be such as not to disappoint the hopes of the planter ; he wants peaches not every third, fourth or fifth year, but every year. Viewed in this light, location is of the first importance. Not every spot, even in this favored location, is desirable for a peach orchard. Low lands are especially to be avoided. Frosty places are of very doubtful propriety, for while the trees may grow well, the fruit buds are more liable to be injured in spring after the bloom opens. Elevated lands are therefore most valuable and desirable for peach growing.

PREPARATION OF THE SOIL.

We clear our land in the summer after the terminal bud of the timber growth has been formed, and the hot weather sours the sap which prevents the stumps from sprouting, and causes them to decay much sooner. I like the plan adopted by some, of staking off the rows while clearing, and piling the brush where each tree is to stand. When the brush gets well dried, we burn. There is no better fertilizer for the growth of trees than wood-ashes, and the burning destroys all vegetable

growth, and puts the land in the best possible condition for the growth of young trees.

We endeavor to break this new land as soon after burning as we can during the fall, using heavy plows made for that purpose, and drawn by four heavy mules. This land is left laying to the action of the frost through the winter. In the spring we cross-plow and harrow thoroughly, then it is ready for tree planting. If you would lay a foundation for a noble orchard, pulverize the soil thoroughly before planting.

DISTANCE BETWEEN TREES.

This is still an unsettled question in the minds of many planters; while the trees are small, sixteen feet seems to be quite far enough, but I think in this locality, where the tree is of long life, and grows to be very large, twenty feet would be much better.

In planting, we use one-year-old trees, and always set in the spring, taking trees fresh dug from the nursery, or if dug in the fall, kept in root houses over winter.

Before planting, they should be entirely stripped of branches, leaving only a straight stalk about three feet long. To make it convenient, each variety should be set in blocks to themselves, with driveways through, to enable easy reach with wagons.

For mulching we would depend on cultivation. If the soil is frequently stirred about the tree, sufficient moisture will be obtained. Plant the ground to corn, for by leaving the stalks on the land, corn will take less strength from the soil than any other cereal. On some varieties you will begin to have fruit at two years from planting, at which time stop cropping but continue the cultivation.

For the work, we use while cultivating the corn the common double shovel plow, after that we use several kinds of implements. The main idea is an implement that will do the work, both thoroughly and speedily, in the least time and at the least cost. An excellent implement is a frame made like the common A harrow with sixteen or eighteen cultivator hoes, with bow attached to enable easy handling; the frame being five or five and a half feet wide, one man and team can cultivate a large acreage per day. We expect the trees to make from one to three feet growth each year. In pruning we have practiced the method of cutting all branches off the next year after planting, and with some we have just headed in shortly. If the tree has made a good growth and

formed a nice head I prefer the latter plan. The after pruning is to shorten in each year's growth, as a rule, one third; some varieties more, some less; this system causes a stalky growth, prevents the slabbing off of limbs, the fruit is more evenly distributed and nearer the trunk, the limbs do not bend down causing the fruit to get scorched by the sun, makes a protection to the tree from the hot sun and makes easier access to the fruit in gathering. Never trim up a tree or thin out the inside branches, nature will do that soon enough.

VARIETIES.

This is another very important point; peaches must be used in their season and to have them the entire season, varieties must be planted that will ripen from the earliest to the latest.

Most commercial planters are beginning to discard the early varieties; but our experience, so far has proven the early peach to be as profitable as any we have fruited. They have been good size, highly colored, ripened beautifully, made as many boxes to the tree, no rot has prevailed and have sold as high priced as any; yet I would not advise the planting of these early kinds, for there is almost an endless number of varieties that are so near identical the differnce can scarcely be discerned, and the chances are you will get all you want in a bill of trees when you do not intend to order any.

DESCRIPTION OF DIFFERENT VARIETIES.

Eldred Cling, earliest true cling, creamy skin, bright cheek, large and good, a splendid tree, ripens about July 10th. Mountain Rose, first best free-stone, large, white, bright red cheek, and good in every particular, ripens about July 20th. Family Favorite, free-stone seedling from Chinese Cling, but better colored, very prolific, large and handsome, extra in quality flesh pearly white, ripens about August 5th. Elberta, crossbetween Crawford and Chinese Cling free-stone exceedingly large high yellow color and taking both tree and fruit I know of no better yellow free-stone existing at this season, ripens about August 15th. Gen. Lee, similar to Chinese Cling, perhaps a little better colored. Mrs. Brett, improved Old Mixom, free, little shy in bearing, while young, ripens about August 20th. Early Crawfords, have one strain that has proven to be very prolific. Keyport White, one of the best peaches, very prolific; creamy white, quality splendid, ripens last of August, free stone.

We have many varieties that ripen about this time, such as Stump the World, Druid Hill, Mixons, Newington Cling, and Prince of Wales; of the later kinds we have Picquet Late, Smock, Salway, Bonanza, Henrietta, and Leopard ripening at intervals from September 1st to October 20th.

Mr. Gilbert—I bought five hundred bushels of small seedling peaches that were but little more than skins and seeds, and now the seeds are worth 35 cents a bushel.

Mr. Evans—In the peach season it was reported in the papers that thousands of bushels of peaches rotted on the ground in Howell County. They were not peaches, they were only seeds, and are worth more now than in the peach season.

Mr. Francis—What is the best time to cut back the peach?

Mr. Evans—I would not recommend cutting back now, but some do. We think it better to begin cutting back at the warm spell in February.

Jacob Faith—A plum orchard made me about \$1 per tree, when five years old.

REPORT OF COMMITTEE ON ENTOMOLOGY.

Mr. Chubbuck—At the last June meeting, I was appointed one of a committee to advise with Miss Murtfeldt in regard to having her prepare an elementary work on entomology for this society. Recently two new works on the subject have appeared, one by Dr. Comstock and the other a revision of Dr. Packard's work. She thought that one of these works might answer the purpose. Dr. Comstock's work was sent to the office of the *Rural World*. It is not such a work as we want. It is published in two parts, and the first part is sold for \$2.

Miss Murtfeldt proposes to continue her work during the winter if the State Society will give her \$250, to pay her and pay for the copyright, and about \$100 for the illustrations. She did not say what sized work she proposed to write, but I think about 100 pages would do. The work should be very simple, not going into detail. Dr. Comstock's work would be an excellent work to follow an elementary work. It would not do for a beginner to study by himself. It is also too costly, more so than the society had in contemplation.

I would suggest here that the State Board of Agriculture be invited to join with us in preparing the work.

Mr. Goodman—To publish such a work would cost the society \$500. I believe we can get it published in our reports, and then have

extra copies by paying for the binding. If the State Board of Agriculture would unite with us, I know of nothing that would be more desirable for our report. We must know more of our insect foes, to fight them successfully.

Mr. Murray—I think the State Board of Agriculture is as much interested in the work as are the horticulturists. I move that the whole matter be left with the executive committee that they may confer with the State Board of Agriculture.

Carried.

SPRAYING.

Mr. Evans—There is no paper on the subject of spraying that I know of; but anyone can have an opportunity to make a few remarks upon the subject.

Mr. Francis—I would like to know if Dr. Goslin's arsenic solution could not be applied to the extermination of chinch bugs if we had a suitable spraying machine.

Mr. Kinder—I sprayed a row of broom corn with Paris Green. It almost killed the corn, but did not hurt the chinch bugs.

Mr. Nelson—A friend of mine sprayed some corn with kerosene to kill the chinch bugs. It killed both the corn and the bugs.

Mr. Murray—I am well pleased with my experience in fighting the Codling moth with arsenic. The cost is small, the labor light, and quickly done. The per centage of wormy apples is very small. Those that were affected were by a late brood that did not hurt the apples very much. No man with an orchard can afford to neglect it. Two ounces of arsenic to 100 gallons of water is strong enough. I did not lose any fruit by the spraying. Some of the foliage was burned by 2 1-2 ounces to 100 gallons of water. I had no trouble in making a complete solution by using a half pound of concentrated lye to 100 gallons of water. It requires about two gallons of water to a 15-year-old tree. I use a common force pump with the "boss" nozzle.

Mr. Francis—Would the spray be good for the leaf roller?

Mr. Murray—The only satisfactory way to find out would be to try it; I don't think it would do any good.

Mr. Gilkeson—I sprayed my orchard with fourteen ounces of London purple to fifty gallons of water, and then again about two weeks later. I also used it on my plum orchard, and I had a very nice crop of plums. Where I did not spray, the apples were full of moths; I think the spraying did a good deal of good.

NEW FRUITS.

Mr. Evans—We have a committee on new fruits, but I believe there is not a member of that committee present. We may have a few remarks from members who have examined the new fruits on the tables.

Mr. Robards—I believe I am one of that committee. I will report upon only one that has been upon the table, grown by a farmer, Mr. Staley. It has a cocoanut flavor and makes no small apples, grows to good size, sweet.

Mr. Murray—I am interested in some new fruits, among them the Babitt apple. The tree is hardy, a good grower, makes fine nursery trees and bears well. Some agents have been selling trees for a high price under this name which were rough and crooked, while the true variety is nice and straight. No other nurseryman has been propagating it long enough to have large trees to sell in any considerable quantity.

Mr. Goodman—I have here some winter pears from Mr. Mallinckrodt, of St. Charles, which he desires you to test, and report whether you think the variety worthy of dissemination.

Mr. Holsinger—I think the pear is worthy of cultivation. The flavor is very pleasant, and the fact of its being a winter pear makes it desirable.

Mr. Robards.—Most winter pears lose their flavor. These seem to be of very good flavor.

Mr. Evans spoke of the new fruits coming to light in the Ozark region of south Missouri and north Arkansas, such as the Minkler, the Horwell. He had seen fifty varieties from this region.

Mr. Holman—I have here a pear which weighs nineteen ounces; it has not made a history yet. It comes from the country of the Bald Knobbers; there is only one tree of it and it will never bear again in consequence of an accident, but we can get suckers from its roots; it is a good cooking and a long keeping pear. It came from Taney County.

Mr. Goodman.—I believe the pear is worthy of cultivation; it resembles the new Idaho pear which has sprung into note recently; if it is a good keeper, we can make some money out of it. I believe we will find some apple in southwest Missouri that will be THE apple for this western country. The Howell and the Minkler, all belong to the same family. I am satisfied that the Minkler and its seedlings are the best we can grow in south Missouri. The Ben Davis is producing a family; here is one of them, the Paris, first shown by Mr. Ambrose, sent from Paris, Missouri. Keep watch of every good seedling you find in south or north

Missouri. We are going to get some of the best apples known. The Babir is destined to be a great Western apple, and hope it will only be equal to the Baldwin in the East. Here is an apple from Franklin County, Missouri; it seems to have some Stark blood in it; it is a very firm, long-keeping apple.

Mr. Bagley—We are quite sure that it is a seedling; it was found in the central part of Franklin County; I suppose the tree is about forty years old; it is a good bearer and keeps equal to the Gilpin.

Prof. Clark—I will state that those apples from the Agricultural College farm at Columbia have been kept in a chamber over a kitchen where it was very warm; the fact, that they have kept at all, will show them to be good keepers.

Question—Can the ripening of the Concord grape be delayed by removing the leaves from the vines?

Mr. Espenlaub—When you remove the leaves from the vine, you might as well remove the fruit, as it will do no more good.

Question.—Would not a lofty trellis prevent rot?

Mr. Goodman—It is somewhat of a preventive.

Mr. Gilbert—I have a neighbor with a few grape vines. He removes the leaves which stops the rot.

Mr. Holsinger—I would like to ask if there is any benefit in delaying the ripening of the Concord grape?

Mr. Kinder—It would be a benefit if you could delay the ripening of half the crop; but how can you do it?

Mr. Espenlaub—We want earlier grapes instead of later. We get twice the price of the large consignments from New York.

Mr. Holsinger—Has any one had experience with the Jewell?

Mr. Espenlaub—It has a small bunch and berry, but is very good and sweet. Is any member making a success of quinces, and what is the value of the Missouri Mammoth?

Mr. Evans—The Missouri Mammoth is the quince, and the only good quince we have ever grown in Missouri. It is hardy in the latitude of Kansas City.

Mr. Logan—We have trees that have not winter killed.

Mr. Gilkeson—It has winter killed with me.

Mr. Menifee—It winter kills with me.

Mr. Holsinger—What do we want with quinces? I saw them selling for \$1.25 a barrel in Kansas City last week. They were shipped from New York and would hardly pay the freight.

Mr. Goodman—We sold all the Missouri Mammoth we could grow for ten cents each.

Mr. Holman.—The quince blights with me. The Champion blights like a Bartlett pear. The Orange does not blight, nor the Mammoth.

Mr. Evans.—Some few persons have made a success of quince growing in Missouri. Lately quinces have been run into the market and broke it down, and when it is down you might just as well try to sell rocks.

Mr. Bell.—I would like to hear from Mr. Nelson in regard to packing fruit.

Mr. Nelson.—Mr. President, if any person wishes to move or leave the room, I hope he will do so now, before I start, as I am very easily embarrassed. I am stage struck now. The subject of fruit packing is too big for a brief talk, but I will try to get over it in seven or eight or ten minutes. First, as to the matter of expense: The farmer should, during the summer season, when the cooper shops are not so busy, make an estimate of the number of barrels he will need to hold his apples, and give his order for them and have them ready. In York State they won't even move potatoes in sacks. The farmer buys his barrels and has them ready.

The fruit buyer goes around the country and buys his apples, and has them classed into two grades. The idea of moving apples in boxes would be preposterous nonsense in an eastern state. In York State I never saw number one apples moved in boxes. I may be called a crank. Benjamin Franklin was a crank. Edison was a crank. You may call me a crank upon the subject of barreling apples in the orchard, if you want to. I will take it. Let the education of the people up to the high standard I advocate begin now. Let the grower understand that his interest is identical with that of the seller.

I went to the trouble to collect some fruit in my county for the St. Louis fruit show. One farmer brought me four fine samples. One of his samples of Jonathans was the finest in the exhibition.

Mr. Bell or any other gentleman must have pretty good help in packing his fruit. I pay ten cents an hour the year around for all the help I have. Nearly every farmer has more or less help at home which he can train to do the work of packing, so that he can do it cheaper than the buyer and shipper, like Mr. Bell.

Mr. Murray.—I would like to ask Mr. Nelson about what is the difference of time for gathering apples in the east and in Missouri.

Mr. Nelson.—We sometimes begin to gather such varieties as the Lowell and Twenty Ounce as early as September 8th.

We begin to gather our winter apples about the tenth or the fifteenth of October, and aim to have them all on the way to market by the first or fifth of November.

REPORT ON AGRICULTURAL COLLEGE FRUITS.

The committee to examine the fruit on exhibition by the agricultural department of the State University, at Columbia, reported as follows:

We find upon the table, seventeen varieties of very beautiful, large size and perfect specimens of apples, showing the greatest care in selection. Among the number of new sorts to the state, we recommend as worthy of cultivation, "Kennard's Choice," a very highly colored red apple of medium size and first quality, and doubtless a good keeper. We cannot say much of this variety. Should the tree prove to be a good grower, hardy and prolific bearer, it will take a first place among the apples of Missouri.

"Pyles' Red"—winter; very large, of good quality and valuable.

"Saylor," below medium; red; good quality, and, for a sweet apple, hard to beat.

"Herman, another sweet apple; red; large size and good quality and to lovers of sweet apples, a very desirable variety.

"Boyd" is undoubtedly the "Clayton;" is of good size, a long keeper, and on certain locations, a most valuable sort.

"York Imperial" is pretty well known in various portions of Missouri; large red, of fair quality; good keepers; tree bears young, and worthy of cultivation.

"Russian" is the "McAfee None-such;" no value.

Same may be said of the "Lawson." The specimens, however, are fine, and will catch the eye of the amateur.

"Yeats" is identical with the "Stark;" very fine.

"Mamma," medium in size, but only fair in quality.

"Cedar-Falls," small and of little value.

"Henwood," large, yellow, resembling "Yellow Belle" family; good in quality.

"Huntsman" are worthy of special mention; very fine.

"Red Janett," large, red, but of poor quality.

"Willow Twig" and "Winesap" deserve favorable mention.

The Agricultural College deserves great credit for thus fostering and experimenting with new sorts, and we trust they may be supported in their efforts to disseminate well tested varieties to each section of the state. Possibly such varieties as the Lawver and McAfee may yet find a home where they may become valuable.

FRANK HOLSINGER,
HENRY SPEER,
D. S. HOLMAN,
W. G. GANO.

THE MISSOURI AGRICULTURAL COLLEGE COLLECTION OF APPLES.

In the *Rural World*, of January 17th, there is the report of the committee who examined the collection of apples exhibited by the Missouri Agricultural College, at the annual meeting of the Missouri State Horticultural Society, at Nevada, Mo. It is of special interest in this section, from the fact that several of the varieties mentioned were obtained here, along with forty or fifty other rare and choice kinds in the spring of 1882.

"Kennard's Clevice" is evidently Kinnard's Choice, a valuable Tennessee apple.

Pyle's Red Winter is from Pennsylvania, and worthy of all that has been said in its favor, and more.

Saylor has probably got mixed with some others in the planting or registering, as the description given by the committee suits Kentucky Sweet. The former is a very good, sub-acid, Pennsylvania apple, rather above medium in size. The original tree seems to have been growing in the orchard of Edward Saylor and Mr. Downing ("Selected Fruits," p. 195) calls it Ned, which is less euphonious.

Herman is from some other source, as it has never been in the collection here. The description in Downing's large work states that it is "sub-acid" instead of sweet.

Boyd can hardly be identical with Clayton, though I am unable to decide from personal experience, as the tree containing the grafts of the latter met with an accident after bearing but once and before the former came into bearing; and grafts of Clayton on another tree have not yet fruited. Mr. Downing (First Appendix, p. 3) states that Boyd originated in Monroe county, Kentucky; here it was received from the late J. S. Downer, an intelligent and enthusiastic pomologist of Todd county, in the same state, fifty miles or more west of Monroe and near the Tennessee line.

York Imperial should be better known. It is a Pennsylvania apple, but it was received here from Georgia as Johnson's Fine Winter. It is very smooth and very highly colored on our uplands, much more so than specimens received a few weeks ago from Virginia, and which were also distinctly striped—something that rarely happens with this variety here. The moderate growth of the tree is about its only drawback.

Cedar Falls is from North Carolina and, with us, seems to be a promising apple, medium and above in size.

Henwood is from Eastern Indiana, said to be a seeding of Ortley or "White Belle Flower," as it was formerly called, but it resembles the Yellow Belle Flower more. A pretty good apple, but the tree is only a moderate grower.

No "Russians" were ordered in the collection above mentioned. They are of comparatively no value in this latitude, nearly the same as that of Columbia. But as a good deal has been written about them in recent years, many think they are something extra; and occasionally some nurseryman uses the name "Russian" as a kind of boom. It is a new addition to the long list of synonyms which McAfee's *None-such* has gathered up. As another new application of "Russian" it may be added that a splendid apple received here from near Salt Lake City a couple of months ago, and which the gentleman sending it stated he had obtained (the cions) from a nurseryman there a few years ago as "Early Russian," turned out to be King of Tompkins.

Stuart's Golden (this is the correct spelling—not Stewart's), resembles Fulton slightly, but is of better quality and a better keeper, and the habit of the tree is different. It originated in this country in the seedling orchard of the late William Stuart, one of the oldest citizens, over a half a century ago, and was called the Stump apple by the young people,

from the fact that the tree grew near a big white oak stump. Having no one to push it out, it remained for many years but little known, except as lovers of choice, long keeping apples in this and the adjoining counties carried cions from the original tree to graft in their own orchards. It is figured and described in Downing's ("Third Appendix," p. 36-7); also in the *Rural New Yorker*, for July 5, 1879.

Press Ewing is entirely different from Rome Beauty; not so large, nor so highly colored, nor so salable in market, but a good family apple; it is from Kentucky.

Huntsman is a good apple, and the tree is a nice grower but not a very good bearer here. Willow Twig is an immense bearer, but of very straggling growth. Lawver makes a most beautiful tree, but the fruit is apt to be scabby. Winesap is generally too small, but, no doubt, it does better on rich, new Missouri soil. A friend from this state found Rawles' Janett so enlarged and beautified on the Kansas border some years ago, that he could not believe it to be correct until he examined the trees.

The Missouri Agricultural College is doing a most valuable work in testing so many different kinds and varieties of fruit from all parts of the country. Few individuals have either the time or the means for such extensive experiments.

R. J. BLACK.

FAIRFIELD COUNTY, OHIO.

ST. CHARLES, Mo., Dec. 3, 1888.

The following letters were received and read :

L. A. Goodman, President Evans and Members Horticultural Society:

GENTLEMEN--My health being not of the best, the weather so propitious to do a little work here or there, and like most nurserymen and fruit-growers, I have so many little things to attend to which require my direction, I am prevented from meeting with you, however, much to my regret.

I send to address of our secretary for exhibition and final distribution, specimens of Krull's Winter Pears, a variety growing on the premises of a Mr. Krull, of this place. Test the pear and pass judgment upon its merits. The tree is about 20 years old, fruits regular since of fruiting age and has shown no trace of blight or other disease so far. Have seen the fruit sound and plump in April, when kept in an ordinary cellar, and without any special care or attention.

I will graft the pear this winter, and hope to have some young trees for distribution in fall '89.

In same box I send two specimens of an apple which I would be glad if some one knowing would name. I have tried to identify the same with the aid of Warder and Downing, but failed to do so satisfactorily to myself. The apple seems to possess fine keeping qualities, and the tree appears healthy, vigorous and fruitful, while the fruit withstands bugs and scabs better than any other variety growing near it.

The present season brought us a fair crop of all fruits in this vicinity, and on the whole prices have been satisfactory, where fruits were properly handled, and our home markets were utilized. The least encouraging to our farmers were the prices for winter apples, yet I think the final result will prove quite satisfactory when the apples were stored properly to await the subsidence of the glut in the markets, which occurs almost every fall when we have a good crop of that fruit.

Our orchards had suffered somewhat by the recent severe winter season, and by the protracted drouth of summer '87, but wherever properly cared for have recuperated largely this season, and are generally in good condition at this time, with fruit buds well set and developed, thus promising a good crop in 1889.

Pear blight as far as could observe, has been less violent hereabouts this season than common, and the consequence has been the best and most abundant crop of pears that it ever has been my good fortune to witness or enjoy.

It is with great pleasure that I may report a rapidly growing taste and delight in ornamenting door yards and public grounds, as also lining streets and roadways with trees. Arbor day was observed by quite a number of the public schools of this county, and trees, etc., planted on the grounds.

Let the good work proceed.

Convinced that you will have a successful and numerous meeting, and again expressing my regret that I cannot be with you to enjoy and profit through it as only one can by being present, I am

Yours truly;

C. T. MALLINCKRODT.

NEOSHO, Mo., Dec. 3d, 1888.

L. A. Goodman, Esq., Westport, Mo.:

DEAR SIR:—I send you to-day, by express to Nevada, two baskets of apples, for exhibition at your meeting. Please allow me to draw your attention to the variety named "Ferguson." The few trees I have of it were, (if I remember correctly) propagated from a seedling tree, which originated in Barry county, perhaps 25 miles Southeast of here. They are very vigorous and upright growers, though planted on a very poor prairie land, and standing in a meadow, without ever having been cultivated or manured. They brought me four crops and have always kept better than Limbertwig with me, while the tree is growing and bearing better than Lawver, and has proven hardier than that variety, to which it probably most resembles. The apple is not yet mellow enough to eat. (It ripens and colors on the tree at least six weeks later than Ben Davis.) In its seasons, say from February to May, it is a fine-grained, sub-acid to acid, juicy and what I would call best quality. Can probably be best compared to a good Janetton, yet finer and higher flavored and decidedly better, as well as better and of most beautiful red color.

It strikes me this apple is just what we need here near the southern limit of the American apple belt.

Southwest Missouri and Northwest Arkansas are perhaps as good apple regions as can be found; and orchards are being planted everywhere. But the bulk of our large crops has to be sold at from fifteen to fifty cents per bushel, or made into cider or dried, for no matter how fine and large our Ben Davis our Janetons, Winesaps, Missouri Pippins Rome Beauties or White Winter Pearmain may be we can rarely keep them long enough to bring the high price they always command in the spring.

An apple like the Ferguson, kept here till there is nothing but Limbertwigs left to compete with it, will be sure to bring one to two dollars per bushel, right here in our home market.

The gentlemen of your society interested in vineyards will do well to get reports on experiments made this season with sulphate of copper remedies, against Mildew (*Perenospora*), and Black Rot. Write to department of Agriculture for it. It will be ready in January.

We have Mildew most assuredly under our control; while Black Rot has at least been diminished considerably, and it is quite possible we may yet succeed to prevent it, as surely as we now can Mildew.

Very respectfully yours,

HERMAN JAEGER.

Your committee on apples respectfully submits the following report:

W. H. Hollaway, of Butler, Bates County, has on exhibition, a jar of plums, a seedling of the Wild Goose, ripening from two to three weeks later than its parent, which he has named the Butler. In size it is a little smaller than Wild Goose; in quality, all who have tasted it, pronounce it first-class. Those who saw the original tree, this summer, report it as distinct from any other in bark and foliage, and that it bears an immense crop of fruit, ripening through a long season, and adhering to the tree after fully ripe. Color, red, and almost a freestone.

J. H. Monsees & Son, Beaman, Pettis County, Mo., exhibit two plates of a new apple, which they name, the Hopewell. They also show a yearling tree of this variety. The apple is showy and promises to be a good shipper and a long keeper. The tree resembles, at one year old, the Clayton. The leaf is large, and the growth, vigorous. The specimens shown were picked in September, too early to judge now of its quality.

Joseph Kirchgraber, Springfield, Mo.—Plate of Henderson's Early Puritan potatoes. He speaks in high praise of their yield and quality. The specimens exhibited are large and fine.

Perry Swainson, Nevada, Mo., has an exhibit of tuberose bulbs, radishes, celery and parsnips. This exhibit is meritorious.

H. B. Francis, Mulberry, Bates County, Mo.—A sample of evaporated fruit, very nice in every way.

J. N. Menifee exhibits specimen potatoes of an average length of over six inches.

CEDAR COUNTY.

Exhibit, by E. Liston.—A large and showy display of apples, numbering 60 plates. Among these, a plate of new apples, named Thorp. It is a seedling and resembles the Winesap, and it is claimed that it hangs to the tree better.

Mr. Liston is entitled to the thanks of the Society for this fine display.

VERNON COUNTY.

Makes an exhibit of twenty-six varieties of well-grown, smooth and fine colored apples.

J. H. Logan & Sons, of City Fruit Farm, Nevada :

Display consists of quite a number of very fine plates of highly colored winter apples. Also three jars of plums and three varieties large, fine-looking, sweet potatoes.

Herman Yaeger, Neosho, Newton County.

Had on exhibition a number of varieties of choice apples.

Wm. Broadbeck, Oregon, Holt County.

Exhibits thirty varieties of choice apples.

Jacob Faith, Montevallo.

Had quite an interesting collection of apples, turnips, fermented and unfermented grape wine ; also medicinal Blackberry wine.

J. G. Kinder, Nevada.

Showed a remarkably fine plant of White Plume celery, and also one of White Solid Celery.

The Missouri State Horticultural Society's collections consisted of about 500 plates of fruit—of apples, pears and quinces—that had been at the exposition held at St. Louis last September, which had been kept in the Automatic Cold Storage Co. of St. Louis.

The fruit was in a remarkably fine state of preservation, and proves, without question, that perishable fruits can be kept a long time when placed in cold storage.

THE AWARD OF PREMIUMS WAS AS FOLLOWS :

Handsomest Apple—1st, To N. F. Murray, for Jonathan.

2nd, To Jasper Horticultural Society, for Missouri Pippin.

Best Eating-Apple—1st, To D. S. Holman, for Holman.

2nd, To N. F. Murray, for Grimes.

Best Market Apple—1st, To Jasper County Horticultural Society, for Ben Davis.

2nd, To A. J. Blood, for Willow Twig.

BEST NEW APPLE.

The committee, not knowing anything respecting the growth and habits of the different trees, made no award, but recommend them to further notice.

In this class there were four entries. Judging these varieties simply by the fruit, the committee recommends them in the following order:

No. 160. Shown by W. E. Flanders.

Fruit very large, quality and color similar to Ben Davis.

No. 7. Shown by J. H. Monsees,

Fruit medium in size, color red, fine grained, quality good.

No. 220. Shown by H. Yeager, for Ferguson.

Fruit size above medium, color red, quality medium.

FOR BEST SEEDLIG APPLES.

1st. No. 81. To M. J. Roundtree.

2nd. " 152. To D. M. Dunlap.

1st. For Bailey Sweet to A. H. Gilkeson.

1st. For Yellow Belle Flower to J. H. Logan.

2nd. For " " " to Wm. Broadbeck.

1st. For Babbitt to W. R. Laughlin.

1st. For Ben Davis to Olden Fruit Co.

2nd. For " " to J. S. Hatten.

1st. For Baldwin to A. H. Gilkeson.

2nd. For " " to Sam'l Chick.

1st. For Broadwell to N. F. Murray.

2nd. For " " to Jasper Co.

1st. For Clayton to J. H. Monsees.

2nd. For " " to J. Kirchgraber.

1st. For Cumberland Spice to W. R. Laughlin.

1st. For Dominie to J. H. Logan.

1st. For Grimes Golden to E. Liston.

2nd. For " " to Jacob Faith.

1st. For Gilpin to Olden Fruit Co.

2nd. For " " to A. C. Carson.

1st. For Fallawater to A. H. Gilkeson.

2nd. For " " to H. Speer.

1st. For Fall Winesap to Wm. Broadbeck.

1st. For Fink to " " "

2nd. For " " to Jasper Co.

1st. For Famuse to Olden Fruit Co.

1st. For H. Nonesuch to Jasper Co.

2nd. For " " to E. Liston.

- 1st. For Huntsman to H. Speer.
2nd. For " to A. H. Gilkeson.
1st. For Hopewell to J. H. Mensees.
1st. For Ingram to Jasper Co.
1st. For Jonathan to N. F. Murray.
2nd. For " to Wm. Broadbeck.
1st. For Janet to " "
2nd. For " Jasper Co.
1st. For King to Wm. Broadbeck.
1st. For Lansingburg to A. H. Gilkeson.
1st. For Lawver to J. H. Monsees.
2nd. For " to Jacob Faith.
1st. For Lady to A. H. Gilkeson.
1st. For Missouri Pippin to Jacob Faith.
2nd. For " to J. H. Monsees.
1st. For Milam to Olden Fruit Co.
2nd. For " to J. N. Menifee,
1st. For Northern Spy to Henry Shepley.
2nd. For " to Wm. Broadbeck.
1st. For Minkler to H. B. Francis.
1st. For Ortley to Olden Fruit Co.
2nd. For " to N. F. Murray.
1st. For Nick-a-jack to Olden Fruit Co.
1st. Pennsylvania Red Streak to E. Liston.
2nd. For " " to N. F. Murray.
1st. For Rambo to J. N. Menifee.
2nd. For " . to E. Liston.
1st. For Pryor's Red to J. N. Menifee.
2nd. For " " to W. R. Laughlin.
1st. For Rome Beauty to Olden Fruit Co.
2nd. For " " to B. F. Bush.
1st. For Roman Stem to Jasper Co.
2nd. For " " to J. H. Monsees.
1st. For Smith's Cider to J. Kirchgraber.
2nd. For " " to H. Speer.
1st. For Stark to J. Kirchgraber.
2nd. For " to Wm. Broadbeck.
1st. For Talman Sweet to N. F. Murray.
1st. For Seek-no-further to Wm. Broadbeck.
1st. For W. W. Pearmain to Jacob Faith.
1st. For Vandevere to Wm. Broadbeck,

- 1st. For Winesap to J. H. Logan.
 2nd. For " to J. H. Monsees.
 1st. For Willow Twig to A. H. Gilkeson.
 2nd. For " " to B. F. Bush.
 1st. For Woodmansee to W. R. Laughlin.
 1st. For White Pippin to J. Kirchgraber.
 2nd. For " " to H. B. Francis.
 1st. For Wagner to B. F. Bush.
 2nd. For " to H. B. Francis.
 1st. For Henderson's Early Puritan Potato to J. Kirchgraber.

G. F. ESPENLAUB.
 W. G. GANO.
 J. W. CLARK.

LIST OF VARIETIES OF APPLES ON EXHIBITION.

Winesap.	Snow,
Wagoner,	Lady's Finger,
Rome Beauty,	Twenty-Ounce,
Grimes Golden,	Æsopus Spitzenberg,
Lawver,	Lady,
Willow Twig,	Babbitt,
Jonathan,	Woodmansee,
Ben Davis,	Ortly,
Baldwin,	Limber Twig,
Seek-no-Further,	Dominie,
Northern Spy,	Yellow Belle Flower,
Janet,	York Imperial,
Black Twig,	Paris,
Huntsman,	Talman Sweet,
Smith's Cider,	Ladies' Sweet,
Tulpahocken,	Canada Red,
Missouri Pippin,	Pennsylvania Vandevere,
Hopewell,	Red Romanite,
Romanstem,	Broadwell Sweet,
Perry Russet,	Newton Pippin,
Clayton,	Ingram,
Minkler,	Stark,
Jenneting,	Eng. G. Russet,

Winter Pippin,
McAfee,
Little Romanite,
Fink,
Tewksbury,
Milam,
Rambo,
R. I. Greening,
Gilpin,
White Pippin,
McAfee's Red,
Nick-a-Jack,
Red Streak,
Fulton,
Sweet Jenneting,
Ramsdell Sweet,
White Rambo,
Pyles' Red Winter,
Rawles' Janett,
Cedar Falls,
Mamma,
Kentucky Longstem,
Press Ewing,
Sparks,
Herman,
Russian,
Shilling,
Cannon Pearmain,
Stuart's Golden,
Sailor,
Red Janet,
Henwood,
Kinnard's Clevice,
Boyd,
Yeates,
Ladies' Sweeting,
Fall Winesap,
Green Cheese,
Autumn Strawberry,
Putnam Russet,
Robert Pippin,
W. W. Pearmain,
Thorp,
Pennock,
Hubbardson N.,
Pryor Red,
Red W. Sweet,
Green Pippin,
Pennsylvania Redstreak,
Poughkeepsie Russett,
Guthrie,
Hughes Crab,
Bailey Sweet,
Fallawater,
Paradise Winter Sweet,
Golden Sweet,
Vandevere,
Barb,
King Tompkins Co.,
Seek-no-further,
Ferguson,
Fall Pippin,
Pewaukee,
Ewalt.
Peck's Pleasant,
M. Henry Pippin,
Monstrous Pippin,
Western Beauty,
Newton Spitzenberg,
St. Lawrence,
White Rambo,
Maiden Blush,
Poplar Pear,
Gano,
King,
Winter May,
Autumn Sweet,
Smith,
Grindstone,
Black.

FRIDAY, DECEMBER 7TH, 7 P. M.

Meeting called to order by the President.

The opera house was packed from pit to gallery, Friday night, to witness the closing exercises of the State Horticultural Society.

The regular order of business was agreeably interspersed with musical and literary exercises of a highly creditable character. After prayer by Rev. Mr. Hines, of Iola, Kansas, the committee on obituaries, through its chairman, Mr. Holman, reported the death of Z. F. Ragan, of Independence, at the age of 71; of W. M. Hopkins, of Springfield, at the age of 72. The report was biographical, and paid a glowing tribute to to the life, character and public services of the deceased.

The following letter and report was received :

ST. LOUIS, Mo., December 5, 1888.

Mr. L. A. Goodman, Secretary Mo. State Horticultural Society, Nevada, Missouri:

DEAR SIR—I regret the necessity of informing you that I cannot attend your present meeting. I have been very ill during the past three weeks, and my physician advises me not to risk undertaking a trip to Nevada at the present time.

Prof. Nipher has sent you some copies of a paper in the Missouri Weather Services. Will you kindly distribute them among the members of your society? The paper includes about all that can be said in favor of the system of state weather services.

Very respectfully, your obedient servant,

G. A. WEBER,

Ass't. Sug't. Sig. Corps, and Dir. Mo. W. S.

THE MISSOURI WEATHER SERVICE SHALL IT BE SUS-TAINED AS A STATE SERVICE.

BY FRANCIS E. NIPHER.

HISTORY OF THE ORGANIZATION.

In November, 1877, the writer entered into correspondence with gentlemen in various parts of the state, which resulted in the organization of a volunteer weather service in Missouri. The number of observers at the outset was about forty, and the observations were begun December 1, 1877.

The observers were nearly all furnished with tested rain gauges, for which they paid the cost price; many of them also secured thermometers, which, however, have never been compared with any standard, nor were any instructions issued regarding the proper exposure of these thermometers.

The scope of the service was, primarily, to investigate the rainfall of the state, and the work has been largely confined to that subject.

The scope of the subject was thus limited by reason of the fact that the director could not afford to give the time and means required to carry on a more extensive work.

Nevertheless, most of the observers have made observations upon temperature, some using ordinary thermometers, and others providing themselves with Green's or other good instruments.

At the time of organizing the service, a state weather service had already been organized in Iowa, in October, 1875, by Dr. Gustavus Hinrichs to whom belongs the honor of being the pioneer in state weather service work.

In those days the Signal Service was unfriendly to the State Service work. Many observers in Iowa and Missouri remember the circular letter of the Chief Signal Officer, Gen. Meyer, dated November 1, 1877, warning them that "no circulars or circular letters relating to the taking of observations, the concentration of reports, or in other ways connect-

ed, or seemingly connected with the duties of this office, are authorized by it, unless such circulars are dated from the office of the Chief Signal Officer at Washington, D. C., and are authenticated by the signature of the Chief Signal Officer or by that of an officer acting under his special order in each case, and so shown upon the circular."

The Weather Services of Iowa and Missouri continued to grow notwithstanding, and that of Iowa was made a State Service by the Seventeenth General Assembly, in 1877.

When Gen. Hazen became Chief Signal Officer in November, 1880, a more liberal, not to say more enlightened policy was soon manifest, and the great value of State Weather Services was fully recognized. The Signal Service now co-operates most heartily with them. Since that time many states have followed the example of Iowa and Missouri, namely : Alabama, Arkansas, Illinois, Indiana, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Nevada, New England, New York, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee and Texas. Several of these states have made adequate appropriations for carrying on this work ; among these, Iowa and Ohio have done most.

The present Chief Signal Officer, Gen. Greeley, has done much to encourage the establishing of these State Services, although he states in a personal letter that he does not feel that the National Service has any function to perform in connection with them save to give such slight aid as may be possible, and to give the benefit of its advice when so desired.

He adds that in his opinion the cost of making known the climate of a state should fall upon the people of that state, and when, as in the case of Missouri, it has a climate suited to the production of all the great staples of the country, there is no reason why the state should hesitate to make this known.

VALUE OF STATE WEATHER SERVICES.

To show how valuable the information collected by a State Service may be, the following is cited :

In Iowa, horticulturists have found much trouble to grow apple trees by reason of the severe winters. A prominent horticulturist imported varieties of Russian apples, introducing them with the statement that the climate from which they came was similar to that of Iowa. They were widely planted, and there was a very general neglect of native varieties which had in part succeeded. Dr. Hinrichs made an ex-

tensive study of Russian climate, and showed conclusively that that country had no climate which in any way resembled that of Iowa. It is generally agreed by those interested, that this one paper of Dr. Hinrichs, comparing the climate of Russia and Iowa, was worth in cash to the state more than the service has cost in ten years. It showed the danger of depending on Russian apple trees.

At the present time, some eastern capitalists are investigating the climate of Missouri, with a view of investing a million of dollars in a new industry. If the Missouri Weather Service could not give the required information, there is no reason to think that these men would even contemplate the investment of their capital in our state.

RELATION OF THE STATE SERVICE TO THE NATIONAL SERVICE.

The State Weather Service bears the same relation to the National Service, that the State Government bears to the National Government.

There are many large storms, of great severity, which damage shipping and endanger life. The signal service has done a great work in giving warning of these storms. Shippers and dealers in provisions and fruits find the cold wave warnings of the greatest value. In all large cities the approach of a "warm spell" is known through the Signal Service predictions, and thousands of tons of meats are hurried to cold storage warehouses, and the opportunity to ship other provisions which must be kept from freezing is anticipated and made available. It is not saying too much to say that it would be impossible to carry on the shipping business of the country, as it is now carried on, without the aid of the national weather service.

But each state has its own peculiar industries, advantages and interests. It should provide for a thorough study of its own climate, and should distribute published reports for the benefit of those who may desire such knowledge.

There is another field which peculiarly belongs to the state weather service. The weather, which is of greatest importance to the farmer, is the weather of harvest. During that time storms are usually very local. They may cover a few counties only, and inflict immense damage. People living in the city can learn from the Signal Service that there will be "local rains in Missouri," but nobody knows where in Missouri they are going to locate, and even this information reaches the farmer only after the rain is over, if at all.

The local peculiarities of these storms requires study in each state. Very much has been done in this direction in Iowa and by the New

England Meteorological Society. Such work should be at once begun in our state. In three or four years we should be familiar with the behavior of these storms, and this knowledge could be given to all.

In 1893 the telephone will become public property, and it will then be possible for county telephone services to be established, putting each farm in communication with a county seat. Telephone service can be rendered for a sum which will be utterly insignificant when compared with the advantages which it will bring. Farmers can then be kept informed of the markets, can sell their produce before leaving their homes, and will be able to save much time which they now waste during the busy season of harvest. This is all so apparent that it is needless to discuss it further. In addition, there will grow up a system of harvest storm warnings. It will be very easy for any county telephone system to give its subscribers a general warning of an approaching thunder storm, and to transmit that information to such other counties as may be in danger. The exact details of this scheme may be left to the director of a state weather service to work out. It seems certain that this can and will be done and there is no more reason that this should be done by the National weather service, than that the Congress of the United States should concern itself with the building of a wagon bridge across the Gasconade river.

PAST WORK OF THE MISSOURI WEATHER SERVICE.

The rain charts which accompany this paper show the average distribution of rain for each month and season, and for the year. They embody our labors in this direction from Dec. 1877 to Dec. 1887. In addition, the Director has made a magnetic survey of the state, which for five years, required all of his time during the summer, and a large part of the leisure time of the remaining portion of the year. The time and money expended in this and in general weather service work, if paid for as they are valued by others who employ those services, would be not less than fifteen thousand dollars. Personal friends have also rendered additional aid in carrying the financial burdens, and the cheerful support which the observers have rendered, has been a source of pleasure from the beginning.

But the time has now come when it would seem that the state should be invited to assume the, to it, slight burden of maintaining the weather service. A sum of two thousand dollars per annum with additional provision for printing the reports, will suffice, until the time comes to develop the system of harvest warnings herein mentioned.

This sum will provide a small compensation to the Director, pay current petty expenses, and furnish each year standard instruments to a few tried observers, as the quality of their work may show that they are ready to render suitable service.

ECONOMIC AND ORNAMENTAL TREE PLANTING.

A PAPER BY PROF. M. G. KERN, ST. LOUIS, MO.

President Missouri State Horticultural Society:

It has often been my privilege to converse with officers and members of your society, on the horticultural issues of the future, presenting themselves as important factors in the rapid development of our great state. We are all agreed upon one point, at least, that the time of popular apprenticeship is past, and that the scope of vision, by which to judge correctly the requirements of coming generations, must be quite liberally enlarged in order to keep abreast with the progress made by states surrounding us on all sides.

THE ORNAMENTATION OF SCHOOL GROUNDS.

An important step in progressive horticulture has already been taken by the Society in advocating and encouraging a higher grade of culture in the school grounds of our state, by which the rural taste of the rising generation will materially be improved and elevated to a higher appreciation of the truly beautiful, with which artistic horticulture can surround the homesteads of a refined people. May this agitation be kept up at a lively rate, to prove anew the assertion that just revolutions never go backwards nor fail in the end. Remind the learned educators of our state, respectfully, of course, but earnestly, nevertheless, of a duty they owe to a people determined to be progressive forever.

THE NEED OF FOREST CULTURE.

Another topic well worthy the serious consideration of horticultural societies and the country at large, is the imperative necessity in our day of preparing the way for a rational system of forest culture by which a portion, at least, of the forests of valuable timber can be preserved from the ruthless ways of former years, and new plantations of the most valuable economic timbers started. It would be useless on my part to attempt to present any argument in favor of a subject on which all intelligent, but unprejudiced, Americans agree, but I will say, in this connection, that whatever practical results have thus far been obtained, are principally due to the leadership of the horticultural men and nursery men of the country. Let me allude to the efforts of the later years of the late Dr. John Warder, and to those of the indefatigable pioneer, Rob't Douglas. Some of you have seen a wagon at the late Kansas City Exposition, made of timber grown from his own planting, by Mr. Whitney, one of the earliest nurserymen of Illinois. Like causes producing like results, we may be sure that whatever is to be done in this direction in our state must be started by the horticultural workers; professors or politicians will never produce practical results, however much their work may help to encourage indirectly practical workers.

WHAT MIGHT BE DONE ON THE NEVADA ASYLUM GROUNDS.

Some of us have cast for some time a wishful eye on the beautiful section of land on which the new Nevada asylum is erected. We have thought of a fair division in the interest of the crazy people and the other portion of the population and are of the opinion that a portion of this section might be set aside for the present needs of the institution, for whose benefit it was acquired and that the other part might be devoted with a view to future benefits, not only of this institution, but of the whole state to the purpose of forest culture, as an initial station on which representative plantations of the timbers in which our state is most principally interested might be made, and from which multitudes of seedling trees might be distributed over the state to encourage the culture of future forests, both on the prairie and in districts from which the valuable woods are being rapidly sold off. Let us imagine for a moment the results of such an arrangement.

MORE LAND THAN IS NEEDED.

We all know that 600 acres is more land than the institution, doctors, stewards and all their patients can conveniently and profitably cultivate. Supposing 50 acres devoted to the front and ornamental grounds of the institution, and 150 acres to pasture and farming lands managed by the officers of the asylum; this would leave a surplus of 400 acres of the finest land. What should be done with it? Rent it out or put it down in grass or have it mismanaged in some other way? Suppose, on the other hand, the society's plan adopted, and groves and blocks of trees arising, and the timber lands already there judiciously preserved and harmonized with the whole design; would not the people and the institution be benefited alike? One decade hence the grounds would be a landmark of progress of which old Missouri might well be proud.

Imagination has carried the writer far enough in this direction. To return to the realities of the question, let it be said that this scheme is well worth the consideration of the State Horticultural Society, and likewise of the enterprising people of Nevada. Let a combined effort be made at least to prevent a reckless mismanagement of this valuable tract of land owned by the commonwealth. The legislature of our state should listen, as in duty bound, to advice offered by a society fostered for many years by the government of the state, the members of which should surely be considered competent to suggest a feasible and progressive plan.

One more point in this connection may briefly be alluded to. What will

THE U. S. EXPERIMENTAL STATION OF MISSOURI

do for horticulture, forestry, or arboriculture in general? Let us hope, at least, that it may be more than the Agriculture College has been doing in the past. Fortunately there is a "silver lining" to the dimness surrounding still the future usefulness of the Experimental Station recently created. The liberal appropriation of congress to each state will probably have to be expanded under certain conditions and restrictions. Congress has wisely created a new division of the Department of Agriculture, a

BUREAU OF CORRESPONDENCE

with the Experimental Stations of the Union, by which a harmony of action and a strict accountability of results will soon be brought about,

and further legislation of congress will tend to produce the harmonies of an orchestra and stop the continuous blowing of one horn alone.

The appointment made by Commissioner Colman placing Prof. Atwater at the head of the Bureau is regarded everywhere with great favor.

The Bureau has in its present status no power to prescribe or to dictate a general plan by which the stations of all the states are to be conducted, and is merely a timely medium of correspondence and consultation between the different sections of the country.

WHAT THE BUREAU CAN DO.

Through this bureau it will soon be apparent with what material the several stations are manned, and it acts as a regulator in bringing the various interests, equally deserving to the development of our country, but not now so recognized, into proper recognition. Through it the claims of forestry and arboriculture in general, now largely overlooked, will receive proper attention. Let us but realize for a moment what benefits might be secured to the mighty interests concentrated in a national system of replacing in time a small part of the valuable forests of former times, by the inauguration of a national system of replanting.

Let us suppose that one-fifteenth, say a \$1,000 of the annual appropriation to the stations of each state, devoted to experiments and tests in tree culture throughout the United States; and realize what might be accomplished with even this modest sum. Progress in this direction must of necessity be slow on general American principles, on which we make all calculation on the basis of big crops and quick returns, but time and intelligence will solve this problem in the fullness of time, which may be nearer at hand than we anticipate to-day.

Music for the evening was furnished by the Nevada Glee Club, and was highly appreciated.

Recitation by Miss Gatewood was well rendered and highly appreciated.

PLEASURES OF RURAL LIFE.

MISS KATE TAFT, NEVADA.

There is a serene and settled majesty in forest scenery, that enters into the soul and dilates, elevates, and fills it with noble inclinations. The ancient and hereditary groves, too, which everywhere abound, are most of them full of story. They are haunted by the recollections of great spirits of past ages, who have sought relaxation among them from the tumult of arms or the toils of state, or have wooed the muse beneath their shade. What sweet thoughts arise, how calm the reflections, how the heart wells up in thanks-giving and praise to the "Giver of all good and perfect gifts," as we stroll through the forests or gardens in the evening, delighted with the sweet perfume of thousands of different varieties of fruits and flowers! How grateful when the dew-washed strawberry and the sparkling raspberry send up their delicious flavor, which tempts and also satisfies us with their sweetest odor. Our hearts swell with thanksgiving as we see how the vine has yielded its spicy fruit and the fruits overhead drop their ambrosial riches to our eager grasp. Our praises rise upward to the beneficent Creator, who has so beautified and adorned the world, filling it with every kind of fruit and flavor that is pleasing, refreshing and agreeable to our several senses. The flowers, which lift their sweet and delicate heads to the Omnipotent who has permitted them to live in this world, to cheer the sick and sorrowful, and brighten our hopes for the future.

What a beautiful place must have been the garden of Eden on the morning of creation, with everything to be seen just as it came from the Master's hand, with every variety of bird, beast and flower.

What a desolate place would be the earth were there no flowers in it! It would be a face without a smile—a feast without a welcome!

Are not flowers the "Stars of Earth?" And are not the "Stars of Earth" the "Flowers of Heaven?"

One of the pleasantest scenes is to be found in a greenhouse in mid-winter. It seems as if one was taken away from the cold snow

drifts, the frozen ground and the leafless trees and placed into the middle of summer. All that is wanting is running brooks and the warbling of birds to make everything complete.

How many rare and choice plants and trees are gathered here.

Here are flowers in full bloom, filling the air with their rich fragrance, looking as fresh and beautiful as if it were in the month of June instead of cold, bleak January.

The grape vines seem to forget it is winter and clusters of lucious fruit hang upon the vines. The orange and lemon trees are in bloom, and at the same time the rich golden fruit may be seen on their boughs, while other plants and trees that can live only in warm climates bear their fruit here without, apparently, knowing that they are thousands of miles away from home.

Another beautiful scene is to be in the woods in the spring time. The white snow, which lay as a carpet over the earth, all the cold, dreary winter, is gone, the grass is green and the sun shines warm, the flowers have come out from their mossy beds and are blooming in all of their beauty and sweetness. The trees, dressed in their beautiful foliage, spreading their towering tops over the beautifully carpeted earth beneath. The clear, sparkling water in the stream, rippling along in playful glee, where the little fish are sporting in the bright sunlight. He who would create his own pleasure grounds, these more delicate shades of expression, must become a profound student, both of nature and of art ; he must be able, by his own original powers, to seize the subtle essence, the half disclosed idea involved in the finest parts of nature.

To those who possess a lively and cultivated sense of the high beauty of which landscape scenery presents to the eye, but who can also see creation's God in every feature of the prospect.

The painter can imitate, the poet, describe, and the tourist talk with ecstasy of the sublime and beautiful objects which constitute the scene before him ; but he can only be said to enjoy them aright whose talents, tastes, and affections are consecrated to the glory of Him by whom "all things were made, and without whom was not anything made that was made."

After another song, the following essay was read:

"AMONG THE FLOWERS."

BY MISS MARY KEELING, NEVADA.

"Flowers, as the changing seasons roll along,
Still wait on earth and added beauties lend;
Around the smiling Spring a lovely throng,
With eager rivalry her steps attend;
Others with Summer's brighter glories blend;
Some grace, mild Autumn's more majestic mien;
While some few lingering blooms the brow befriend,
Of hoary winter, and with grace serene,
Enwreath the King of storms with mercies' gentle sheen."

What a lovely, glorious throng they are, and how welcome, "more welcome than a friend whose zeal outruns his promise." How like a happy band of fairies they seem, winning back the sweet breath of summer with their sunny gladness. Of all the myriad host, the first in my thoughts to-night is the poor despised little dandelion, because I feel so much like one of those humble flowers among a great garden of beautiful roses and lilies and geraniums, and other beautiful flowers, who nod their heads triumphantly toward it, as if to say: Poor little dandelion! What can you do! How we pity you! But I donbt not that even the dandelion has its mission. It flourishes by the dusty roadside. But it seems to me that they all clasp hands and come on one beautiful mission, to woo our hearts from earth to that sweet land that is ever blooming with flowers more fragrant and more beautiful. They are bright glimpses of heaven. How they smile away the gloom.

I have read that when poor Queen Marie Antoinette, of France, (she who was once like a beautiful rose herself and Queen over a proud

realm as the rose over its fair domain) was imprisoned, she was comforted by the bouquets of White Juliennes brought to her by the jailor's wife. They had power to soothe even such bitter woe as hers. Perhaps they whispered to her that all suffering and sorrow would be forgotten among the roses and sweet perfumes of our Father's garden. We bring flowers for every occasion; for the happiest and the saddest. When some loved one has passed through the "valley of the shadows," when only the cold form remains, we can do nothing but bring flowers with which to shroud it, and when we have buried it low, we bring the rose and tenderly plant it there. It must be sweet with the white rose waving and blooming and dropping its petals softly, silently, in the long cool grass above.

The poets have immortalized many of these fair things, but I think the little violet, with her blue eye and modest grace, has received more homage than her more stately sisters. It was, perhaps, Shakespeare's favorite flower for he often alludes to it. Somewhere in the "Winter's Tale" he speaks of "violets dim but sweeter than the lids of Juno's eyes or Cynthea's breath," and in another place he says he knows a "bank whereon the oxslip and the nodding violet blow." The pansy is a variety of the violet, of greater beauty but without perfume. Its whole expression seems that of quiet thoughtfulness. You remember poor Ophelia says, "There are pansies; that's for thoughts." We all admire Moore's Lalla Rookh, but I think without its "Vale of Cashmere," it would lose much of its grandeur. For "Who has not heard of the Vale of Cashmere, with its roses the fairest that earth ever gave." What a grand description he has given of it. Surely some enraptured fairy must have lent its power and guided his pen. Remember the valley holds its "Feast of Roses."

"And what a wilderness of flowers;
It seemed as though from all the bowers,
And fairest fields of all the year,
The mingled spoils were scattered here.
The lake, too, a garden breathes,
With the rich beds that o'er it lie,
As if a shower of fairy wreathes
Has fallen upon it from the sky."

And what wreath ever woven more beautiful than the sweet "wreath of dreams" that the enchantress wore for poor Nourmahal when she would recall her Seline's smile. Were I poet, I should sing of the sweet wild rose that grows "uncultured, wild and free." There is a mournful

legend attached to all the old-time flowers. It was poetic Greece that gave a human interest to them, and attached a legend of man's weal or woe, or triumph to every blossom.

They seem so much like the human race, each one with its little biography. I wonder if the modern Narcissi know the fate of their ancestor, "who gazed on his eyes in the stream's recess, till he died of his own dear, loveliness," and lived again in the form of a bright blooming daffodilly. He was like the dude of to-day, only, I suppose, he was really beautiful. We all wonder and are sad that beneath the rose such cruel briars are hidden.

Now I will tell how it fell that the rose was set with thorns.

"She was briarless at first,
So the quaint old legend telleth ;
Little children came, and men,
And the happy maiden loved it.

So the rose tree angered when some feet trod and some hands tore,
Buds and blossoms that she wore;
Then she put forth thorns around her,
One by one, 'till she had thrown prickly armour 'round her beauty.
But she grew faint making moan for the feet that used to trod,
She was "lonely," so I read,
"There's no rose without a thorn,"
But it seems to me a heart might be kept without them.
Sweet as rose without a thorn,
Is the heart that ne'er hath torn
Hand of love that came to prove it ;
Oh may we be in the world's great thronging garden,
Like the blossom-laden tree,
Ere she set sharp thorns, so ;
Growing faint from self-made woe."

Then we have beautiful flower language. This comes to us from the east, though the Turkish and Arabic does not much resemble ours. It is formed not by an idea or sentiment originating in itself, but by its capacity to rhyme with another word—i. e., the word with which the flower rhymes becomes its signification. We give to each blossom that meaning which it seems to express in itself. Some are very beautiful. There is the Jasmine flower, its emblem is "Love in adversity." They keep their odour to themselves all day, but when night comes

Let the delicous secret out
To every breeze that flits about ;

and is a perfect emblem of that love that soothes and comforts in adversity. It is said that the people of the east have sent messages of importance by means of bouquets. But I think the language lives almost entirely for sentiment and for happy lovers who send tender love messages in this sweet way ; perhaps they know their power of pleading. I will close with Leigh Hunt's playful lines on the "Language of flowers:"

"An exquisite invention this,
Worthy of love's most honeyed kiss.
This art of writing billet doux
In buds, and odors and bright hues.
In saying all one feels and thinks
In clever daffodils and pinks,
Uttering, (as well as silence may,)
The sweetest things, the sweetest way ;
How fit, too, for a lady's bosom ,
The place where billet doux repose 'em !
How charming in some rural spot,
Combining love with garden plot,
At once to cultivate one's flowers, and one's epistolary powers,
Growing one's own choice words and fancies,
In orange tubs and beds of pansies ;
One's sighs and passionate declarations,
In odorous rhet'ric of carnations ;
Seeing how far one's stocks will reach ;
Taking due care one's flowers of speech
To guard from blight as well as bathos,
And watering every day one's pathos.
A letter comes just gathered, we
Dote on its tender brilliancy ;
Inhale its delicate expression
Of balm and pea ; and its confession
Made with as sweet a maiden blush .
As ever morn bedewed on bush ;
And then when we have kissed its wit and heart, in water putting it,
To keep its remarks fresh, go round
Our little eloquent plot of ground,
And with delightful hands compose
Our answer of lily and rose,
Of tube rose and of violet,

And little darling,
Mignonette and gratitude and
Polianthus and flowers that say,
Felt never man thus,

A recitation by Miss Mary Birdseye was well received and applauded.

REPORT OF COMMITTEE ON OBITUARY.

Your committee on obituary have to report the loss of two prominent valued members, who, during a long, continuous membership, rarely, if ever, failed to respond to their society's annual roll call. Their accustomed places are vacant in our meeting to-day. Maj. Z. S. Ragan, late of Independence, and W. M. Hopkins, of Springfield, have died since our last meeting. As the ready ripe grain falls before the inevitable reaper, so these, our long-tried friends and brothers, after a long, successful life, went down at the good, ripe age of seventy-one and seventy-two.

Such were their virtues, so well done their life work, and so long and so endearing their associations with us, that it is in our hearts to say more than is admissible now.

Maj. Ragan, the first called from us, was a model man in all his relations and life-work with his fellow-men. A mere reference to the noble deeds so beautifully done in all this good man's eventful life, would fill a volume of faultless matter, echoing the fact that though he be dead he still lives, and his works follow him. On the best page of every clean heart in this society the name of Maj. Ragan will be cherished till its last member goes out to meet him, when our work, too, is done.

Maj. Ragan possessed the finer sensibilities in such large measure as to develop in him the highest type of manhood, which evinces only love for the good and the beautiful, eminently fitting him for the finer and more delicate duties so often assigned him, and which no others could do so well.

Such men are a benediction to the world, making all men better and happier with whom they come in association.

He was a leading spirit in any good cause espoused. His life-long devotion was mainly given to horticulture, in whose wide circles from one side of the country to the other he was well known and justly esteemed. He and Henry Ward Beecher helped to organize the first Horticultural Society west of the Allegheny mountains. He was seventeen years an honored member of the Missouri State Horticultural Society, and several years its president; was at the organization of the Mississippi Valley Horticultural Association, and a prominent member; was a member—and for some time the president—of Missouri Valley Horticultural Society. In all these relations he was ever prompt, ready and willing to discharge any and all of his duties.

In his country's peril he was also a brave soldier and distinguished officer, who baptised the battle-field with his own blood, from wounds which helped to hurry him to his eternal home. Best of all, he was a true soldier in the ranks of Christian men, and obedient to his Captain's every command.

As his poor health grew worse, he sought relief in the milder climate of California, but the end drew near and he only found that beautiful land all fragrant with flowers, a good place to die.

It was very fitting, that his friends, the American Horticultural Society, should kindly go to him there and hold their session almost at his bed-side—the last of their meetings for him on earth. He was visited just before his death by our President Evans and Secretary Goodman, Holsinger and other members of the society, who found it a benediction to themselves to behold the grand old man's readiness and patient waiting for the peaceful end, slowly but so surely coming. He lived and waited till June, and just when we had all gone to our homes from the summer meeting in Holt County, Maj. Ragan went to his "better home" on the 10th of June. He died at the age of seventy-one.

California wept when the good man died, and honored his remains with distinguished obsequies. His body sleeps with the flowers which know no winter. Sweet be thy rest, our cherished, much loved friend.

Profoundest feelings fill one thousand hearts in military and horticultural circles, and fitting words fall like the sacred dew from the earnest lips of this nation's most honored son of the present, in commendation of the virtues of his life.

Like Maj. Ragan's life, that of W. M. Hopkins was long and full of good works. Much we might say of one, might well be said of both. He was a native of Kentucky and to agriculture born. While in full vigor of manhood he came farther west and made Missouri the home and the field of the best labors of his life, devoted to honest, successful till-

age of the soil. After a few years he became florist and seedsman in Kansas City, and later, took the more active field of horticulture, and achieved success with gardening—making small fruits a specialty. When the growing city extended her arms around his property, he sold out and removed to Springfield, in Greene County, where the last years of life have passed in real content and comparative ease.

He was a man well known and never forgotten wherever he lived, and highly appreciated by all who recognize merit. Among the strongest characteristics of his life, was an uncompromising honesty, which made him the noblest workmanship of God. He, too, was an active, valuable and esteemed member of the horticultural societies—our Missouri State Horticultural Society, the Missouri Valley and Greene County Horticultural Society, at the time of his death. He was proverbial for promptness, conciseness, and the absence of superfluity in all work for these societies. He was a man who lived for the future as well as the present, and full of large, sure hope of eternal life. He left us in September last, and while we trust he has a rest and rich reward; we shall long miss him, but never forget him, in the business and social relations of this Society.

Resolved, That in the history of our Society it has been rare that two of its best workers have gone out from us nearly together, and when we could so poorly spare them, and that it is with the most profound regret and sorrow of our hearts we part with such friends and brothers we loved so well, and yet, with gratitude equally sincere, we thank the Great Giver of such men, that we had them so long.

Resolved, 2d, That this Society will ever cherish in dearest memories, the names, life work and sweet friendships of Maj. Z. S. Ragan and W. M. Hopkins among us, and that their example as rare men shall influence our lives of work and association toward the highest possible imitation of all that was good, noble and pure in their example.

Resolved, 3d, That in token of perpetual memory in this Society, a page of its record shall be dedicated to each of our departed friends.

D. S. HOLMAN,
Chairman of Committee.

REPORT FROM GREENE COUNTY HORTICULTURAL SOCIETY.

BY D. S. HOLMAN, SECRETARY.

SPRINGFIELD, Mo., Dec. 1, 1888.

Missouri State Horticultural Society, Officers and Members:

Persuant to custom and law, we come now with our County Society's report to your body in annual session, at Nevada, and bespeak for your society a meeting every way among your best, if not the very best.

The Green County Society has little to report, outside our usual order of short reports. There have however, been some new departures with us this year. About the usual number of old workers, with a few new ones added, have worked right on through this another year, most harmoniously and we think rather successfully. Have done more work than experementing and testing the comparative merits of small fruits, and especially new varieties, and the value of best methods of combatting our enemies in the orchards, etc., and think we have reached some conclusions that may be valuable to us in future practice. We have as a society, given more time, labor and money to exhibitions of our county's home grown fruits on several occasions, than in any former year, and we hope not without some good results. While we have invested or expended more money than formerly, we have a little better balance than before. The seasons of '88 have been favorable to our fruit business, and encouraging and helpful to our society's work. The horticultural field is widening and brightening around us, and we have resolved to still go forward; do some new helpful work every year, if possible.

We have lost one of our best workers and safest counsellors during the year, whose place will be hard to fill, in his line of work. We refer to Mr W. M. Hopkins, who came to us from the Missouri Valley Horticultural Society, did us good friendly service, and made of us all his abiding friends, who mourn his decease.

The society held its annual meeting last Saturday; closed the accounts for 1888 and elected officers for 1889. Also elected the President Sheffield, R. G. Parker and J. Kirchgraber, delegates to your meeting. Mr. Parker will attend, also our secretary,

Hoping for you again a good meeting, and that it may suit you at an early day to give us a meeting in Springfield, we are

Yours,

W. H. HOLMAN.

REPORT OF THE JASPER COUNTY SOCIETY.

BY Z. T. RUSSELL, SECRETARY, CARTHAGE, Mo.

The Jasper County Horticultural Society still lives and continues to hold meetings once a month. Not a meeting has been missed, and nearly all have been interesting, profitable and well attended. The June July, August and September meetings were held in the county, at the homes of the members, and were attended by the wives and families of members, in a kind of horticultural family re-union so familiar to the members of other societies, but new to us. A good pic-nic dinner, prepared by the ladies and spread upon long tables, was a prominent feature of each of these meetings, at which the attendance was large and enthusiastic. They were considered quite successful, and will doubtless be renewed again next year.

During the year our membership has been greatly increased. The roll of membership now contains 54 names, and includes one of the representatives elect to the legislature from this county and the names of two members from other counties—one from Barton and one from Lawrence. We also have members from portions of the county not heretofore represented with us.

Our financial condition too has improved. We are out of debt and have money in the treasury. There have been more persons by 50 per

cent. paid their membership fee of \$1 this year, than ever before during any one year in the history of the society. We hope to continue the rate of increase in our membership, and to become if possible, the largest county society in the state.

Again, last spring, for the second time, this society, through its executive committee, ordered berry-box and crate material for the use of its members. Two car loads were thus ordered and distributed, at a cost of \$741. We have derived no little benefit from buying this way, direct from the manufacturers, and saving to ourselves, as we do, the profits of middlemen and in fact of transportation companies.

Our berry crop was good. Strawberries and blackberries more than commonly so, and prices realized were good, strawberries averaging about 10 cents per quart all through the season. There were expressed from Carthage this year nearly 30,000 quarts of berries and smaller amounts from Joplin, Webb City, and Sarcoxie. Comparing this with six years ago, when not enough was raised to supply the home demand, it will be seen that no inconsiderable increase in the berry business has been made in Jasper County. Berry patches are generally in good order, and promise a correspondingly large yield for next year. The acreage of raspberries and blackberries to fruit in this county next year, will be slightly larger than it was this ; of strawberries, it will be at least 25 per cent greater.

Apples have been a large crop, but they have not been up to what they should be, on account of damage by drought and the fast increasing army of insects, which prey upon them. The price, so far, has been low, only about 25 cents per bushel being paid, in Carthage, for good shipping fruit.

In addition to large quantities of apples which have been canned, evaporated, held over, made into cider, etc., there has been shipped out of Jasper County this season, according to the estimate of a careful man who is in a position to know, close to 500 car loads. Nearly all of our orchards are young ; many are too young to bear. Thousands of trees were set last spring, as predicted in my report one year ago ; many are being set this fall, and more will be set in the spring. Orcharding, then, is here but in its infancy, and notwithstanding the low prices of this year, and the many obstacles to final success, the work of setting still goes bravely on. We look for a great future in apples for Jasper County.

REPORT OF MOUND CITY HORTICULTURAL SOCIETY.

The Mound City Horticultural Society was organized February, 1887, with eight members. The enrollment was increased during the year to forty-seven. During the year 1888, the society has had sixteen meetings. From one to three papers have been read at each meeting, questions of a general nature discussed, and much good accomplished.

The society made a very creditable display of fruit at our Harvest Home, and the greater quantity was sent to the State Society's display at St. Louis. Besides, the society made two other shipments, in all about eighteen bushels. Those contributing to the display were Judge Skeels, Dr. Long, C. Schults, John Bucher, Mr. Houston, Ed Richards, and many others whose names we did not learn. The society elects its officers yearly, in March. The officers for 1888 were: J. Dunkelberger, President; D. B. Browning, Vice-President; M. Houston, Treasurer, and J. M. Hasness, Secretary.

The following are the members for 1888: John Bucher, Sherman Smith, Jeff Drake, Isaac Algier, Wash McNulty, A. S. Smith, Isaac Dunkelberger, J. B. Andes, J. S. Hart, J. S. Kyle, H. C. Smith, Jerry Dunkelberger, Dr. Long, M. Houston, C. Schultz, J. M. Hasness, D. B. Browning, W. H. Paxton, W. H. Litzenberger, Robert Gillis, C. S. Furhman, C. M. Mosher, F. Donan, M. Herron, W. H. Holderman, Ed Richards, W. P. Meyer, H. Walker, W. M. Hamshler, F. M. Parrot, S. V. Richardson, D. W. Weaver, L. C. Smith, Alonzo Hill, D. W. Porter, Jacob Mumm, F. T. Nichols, J. Bickel, J. W. Davis.

A recitation by Miss Inez Scott was an appropriate ending of the meeting.

State commissioner of forestry, M. G. Kern, of St. Louis, chairman of the committee on forestry, was not present, but his report was read by the secretary. The report dwelt upon the necessity of forest culture and suggested that a portion of the asylum farm could be used to great advantage in this way. Mr. Kern thought fully fifty acres for ornamental grounds and 150 for farm purposes would be ample for all needs, and that the remaining 400 acres ought to be devoted to arbor culture.

Mr. Bell, of Boonville, chairman of the committee on packing and marketing fruit, made some valuable suggestions. He thought the importance of planting orchards exclusively for market fruit and the proper packing of the fruit were two things which our fruit-growers do not properly appreciate. That there is a vast difference between a barrel of apples and a packed barrel of apples. If the producer would retain fifty per cent. of his crop and ship only the best and put them up properly, he would find it greatly to his pecuniary advantage. He thought Missouri the banner apple-growing state of the union, but to make fruit-growing profitable here transportation must be made more rapid and cheaper.

W. R. Laughlin, chairman of the committee on final resolutions, reported the following :

Resolved, That the thanks of the Missouri State Horticultural Society are due, and are hereby tendered, to the Ruler of the Universe for excellent weather during the time of our 31st annual meeting.

To the good people of Nevada, and the members of the Vernon County Horticultural Society for their open-hearted hospitality and for their hearty co-operation in preparing for and carrying on the meeting.

To the ministers of the gospel for opening our meeting by prayer.

To the Nevada Glee Club, collectively, and their members individually, for the excellent music so appropriate among the fruits and flowers.

To the different persons who favored us with essays and recitations.

To the railroads for reduced rates.

To the hotels of Nevada, for the best accommodations at fair prices.

To the gentleman of the press for their full and able reports of our proceedings.

And further resolved, that having made such a proud success of the great fruit show at St. Louis and in this room, and having done what we could for the good of the cause at this meeting, we now return to our homes to work with renewed devotion to horticulture, strengthened friendships and confidences among ourselves and increased pride in the presence and faith in the future of grand young Missouri.

W. R. LAUGHLIN,
J. H. LOGAN,
LEVI CHUBBUCK.

President Evans, before dismissing the audience, thanked the society for the uniform courtesy accorded him as its presiding officer, and also the people of Nevada and vicinity for their attention and good order. He then declared the thirty first annual meeting of the Missouri State Horticultural Society adjourned *sine die*.

MISCELLANEOUS PAPERS.

NOTES FROM SOUTHERN MISSOURI—FRUIT GROWING AND ITS PROFITS.

During the fruit-shipping season of '88 there was no section of country east of the Rocky Mountains that attracted as much attention as did the fruit product of this Southern Missouri country, especially that along the Kansas City, Fort Scott and Memphis railroad. Being desirous of knowing more of it and learning something of the profits, I visited the farm, here at Olden, Howell county, of the Olden Fruit Company. This company consisting of J. K. Cravens, Kansas City, L. A. Goodman, Westport; J. C. Evans, Harlem; W. G. Gano, Olden, and Frank Holsinger and G. F. Espenlaub, of Rosedale, Kansas, was organized in 1884, and incorporated in 1885 with a capital stock of \$40,000. The farm contains about 3,000 acres, of which 800 are in cultivation. There are now over 60,000 trees, 40,000 peach and 20,000 apple, and nearly thirty acres of small fruits. The peach crop of '88 was 8,000 one-third bushel boxes, which brought on an average 85 cents per box, aggregating \$6,800. Of small fruits there was sold 658 cases of raspberries, 410 of blackberries and forty-one of strawberries. For raspberries and blackberries they received \$3.00 per case, making an aggregate of over \$10,000. Taking into consideration the value of the corn and potatoes grown in addition to that of the fruit, and that this was really the first bearing year of the peach trees, it certainly makes a good showing both as to profits and success of fruit growing in Southern Missouri. The company will put out fifteen acres more of small fruits in the spring and will add another

hundred acres of peach and apple trees. Judging from the finely-flavored and handsomely colored fruit grown here one can not but conclude that the soil and climate are more fittingly adapted to growing and cultivation of all the varieties grown in a temperate climate.

The ten acres of pear trees promise well, and most of the thirty varieties of grapes do well. The climate has no superior for peach culture. There are now on the farm, peach trees that were put out eighteen years ago and are to-day sound and as prolific bearers as ten years ago. Another thing that strikes the visitor is the price of lands, which ranges from \$2.50 to \$4.00 per acre. Of course first-class valley land commands a higher price, but the upland seems to be better adapted to fruit culture. As a confirmation of that fact I visited Mr. E. F. Hynes, whose fruit farm lies on the high land near the town of West Plains, eight miles south of this. Mr. Hynes came to this country twenty years ago and he began experimenting with fruit twelve years ago. Has originated several varieties of apples and peaches; of apples the Loy and the Levi, and of peaches, the Surprise and the Nectar. Both these peaches are among the earliest varieties known and are being very successfully propagated in New York and California. He has about 150 varieties, and when he hears of any new thing he procures it and experiments with it. He may properly be called the "daddy" of fruit-men in Southern Missouri. He also exhibited thirty four varieties in glass at the late Kansas City exposition, and took the lion's share of blue ribbons. In conclusion, for this time I will say that I am more than ever convinced that this section of country possesses greater and better advantages for fruit growing than any other I have visited, and for these reasons: The price of land is very low, especially so when one makes a comparison with the prices of lands in, say California, ranging from \$300 to \$1,000 per acre. Take the same amount of money that would be required to pay for high-priced land and the amount necessary to be paid out before any returns would come from the sale of the crop, and right here in Southern Missouri in ten years time the same money will bring a higher rate of interest than in either Florida or California. It only needs to be carefully investigated and the most skeptical, I think, will agree with me.

"PROVISO," In *Kansas Farmer*.

OLDEN, HOWELL CO., MO. Dec. 6, 1888.

A PEN SKETCH OF PROF. C. V. RILEY, FORMERLY STATE ENTOMOLOGIST OF MISSOURI.

BY DR. F. W. GODING, RUTLAND, ILL.

History points to but few instances where men have started out in a strange land, without friends or funds, and in exceptional fields, who afterward attained distinction ; and when such was the case, it was always due to persistent perseverance, unconquerable energy and unflagging enthusiasm. A few such instances might be mentioned, pre-eminently that of the subject of this sketch, Charles Valentine Riley.

Born in London, England, September 18, 1843, his boyhood was spent in Walton, subsequently attending private schools at Chelsea and Bayswater until eleven years of age, when he entered the College of St. Paul, Dieppe, France. Here he remained three years, and then spent nearly three years more in a private school at Bonn, Prussia. His passion for drawing and painting, and collecting insects early brought him in contact with the late H. W. Hewitson, and later, with many eminent naturalists at Bonn and Poppelsdorf, his sketches easily carrying off the best prizes, at Dieppe and Bonn.

The early loss of his father, and the care at school of a younger brother, developed in young Riley a self-reliance and sense of responsibility, which gave a practical turn to his views, and convinced him that the classical education he was getting, lacked many elements of utility, and was not the best preparation for active life-work. Acting on this idea, at the age of seventeen, he sailed for New York, where he arrived seven weeks later, with little means, and "a stranger in a strange land." Proceeding westward, he settled on a farm, in Kankakee County, Illinois, with Mr. G. H. Edwards, remaining there four years, and mastering all the details of modern farm work, greatly improving, in many instances, the method then in vogue. His health failing, he went to Chicago, where he was employed for a while as reporter on the *Evening Journal*, soon after becoming connected with the *Prairie Farmer*. Besides a

close application to the duties of his position as reporter, delineator and editor of the entomological department of this paper, he devoted his time and energies to the study of botany and entomology. His industry and versatility soon made him, not only popular with his associates on the paper, but gave him a wide-spread and favored reputation as a writer upon natural history, especially on his specialty of economic entomology, the importance of which he soon made apparent. His connection with the paper continued until the spring of 1868, (interrupted from May, 1864, to November of the same year, when he was with his company, 134th Illinois,) when he accepted the office of state entomologist of your own state, then recently created, chiefly through the efforts of our present distinguished Commissioner of Agriculture, the Hon. N. J. Colman.

In his new position in Missouri, Prof. Riley found full scope for his peculiar abilities, and soon earned a world-wide reputation as an original investigator, and a keen, versatile writer, not only on his favorite specialty, but on various practical subjects connected with education and agriculture. Putting heart and soul into the work, he labored for nine years with no assistance other than his salary, paying his own expenses, even to illustrating his reports, at the same time contending with much ignorant opposition and ridicule from the legislature. During this period of time, his investigations upon the insects then injurious, especially those made from 1873 to 1877, on the Rocky Mountain Locust and Grape Phylloxera, attracted the attention of scientists and agriculturalists all over the world, and he was the recipient of many valuable testimonials, one a grand, gold medal, designed and cast for the occasion, being presented by the French Republic, in 1873, to show its appreciation of his discoveries. His nine reports, familiar to you all, owe their value in no small degree to the fact that they are replete with the results of original research, and of newly discovered facts in the life histories of most of our common insects, together with practical information for controlling them. Accuracy and popularity are combined in these works, which have come to be looked upon as indispensable to the working entomologist and the successful agriculturalist. Encomiums from the highest authorities might be quoted with reference to these reports; but they are too well known to require such in this place.

Upon the passage of the bill authorizing the creation of the United States Entomological Commission in connection with Dr. F. B. Hayden's geological survey in the west, Prof. Riley was chosen as chief, and upon his recommendation, Secretary Schurz appointed Dr. A. S. Packard and Prof. Cyrus Thomas, both eminent entomologists, as his associates.

Accepting charge of the commission thus constituted, in March, 1877, he traveled over most of the western country, from the Gulf to the South Saskatchewan, in British America in company with the various governors, or other state officials, everywhere exhorting the farmers to action, and making careful observations and experiments which were afterwards incorporated in the reports of the commission. In the spring of the next year, Prof. Riley was tendered the position of United States Entomologist, which he accepted, and immediately reorganized the Bureau, obtaining an appropriation of \$11,000 for special entomological investigations, the greater part of which he expended in making observations on the insects injurious to cotton and other southern staples. Resigning that position at the end of the first year, he again assumed active charge of the commission. Congress having complimented him by transferring the cotton worm investigations to the commission.

During the years 1879 and 1880, he continued in the work in which he was so deeply interested, until its final transfer to the Entomological division of the Department of Agriculture, July 1, 1881, when its labors were merged into those of the Division, and closed a year afterward, he, in the meantime, having again accepted the position of United States Entomologist, which he still holds.

Prof. Riley has been a voluminous writer, and the number of articles is so great that it appals me to think of writing even the titles of them. They cover the entire field of economic, and to a large extent that of pure entomology, besides valuable essays on other branches of science, education and agriculture. His labors as editor of the *American Entomologist*, of which three volumes were published; his essays and addresses published in the transactions of the various horticultural societies; his official reports as state entomologist of Missouri, member of the U. S. Entomological commission, and as U. S. Entomologist; his papers in the transactions of the different scientific societies, domestic and foreign; his popular scientific contributions to Johnson's, Appleton's, Brittanica, and the Farmers' and Planters' Encyclopedias; his technical papers in the bulletins of the Hayden Survey, and more recently his Bulletin of the Entomological Division, and editorial work in "*Insect Life*," were all done between the the years 1864 and 1889, and represent a life of tireless activity. It is a quality of his writings that, whether appealing to the plain farmer, or intended for the technical eye of the specialist, they are marked with force, common sense and originality. He seldom writes upon a subject without presenting some new idea or some new fact previously unrecorded; and this originality, both of his

writings and of his illustrations, has caused them to be much quoted and used by all subsequent writers on economic entomology, both here and in all parts of the world.

But Prof. Riley is essentially an investigator. He delights in original research, and will spend years in ascertaining some fact or establishing some truth in his chosen specialty. He accumulated and arranged his private collection of insects, consisting of over 150,000 specimens representing some 30,000 species, during these years of labor, and has arranged for its permanent location in the National Museum at Washington. "Though several special collections surpass it in a single order, few, if any, general collections of North American insects equal it, and perhaps none from a biological point of view." He also, while State Entomologist, prepared a cabinet of sixty drawers for your own state, which now is in the State Agricultural College, at Columbia, and easily accessible to the citizens of Missouri interested in entomology.

Prof. Riley is member of all the prominent scientific societies, domestic and foreign, and also of most of the state and local horticultural societies. He was lecturer on entomology at Cornell University, Kansas State Agricultural College, Missouri State University, and Washington University, at St. Louis. In 1872 the Kansas State Agricultural College conferred upon him honorary degree of A. M., and the following year he received the degree of Ph. D. from the Missouri State University. He has made four trips to Europe since his first arrival here, partly for recreation and partly for the purpose of making special investigations.

Of the practical fruits of his labors it would be difficult to form an estimate; but in reference to all the more important enemies of American agriculture, he has been among the first to anticipate the farmers' wants and the most successful in supplying them.

The qualities that are especially developed in Prof. Riley are an untiring energy and power of application; an intense love of system and order; remarkable powers of observation, great versatility, and a strong hatred of all kinds of imposture and charlatanism. With exceptional administrative capacity, he yet looks into the minutest details. Abhorring loose or careless work, he permits none in those under him. Ambitious, critical and industrious himself, he works with and inspires his assistants. He has, by careful selection, gathered around him a corps of assistants remarkable for their special fitness for the work they have in hand.

Prof. Riley married, in 1878, Miss Emelie G. Conzelman, daughter of G. Conzelman, Esq., a most respected citizen of St. Louis.

In personal appearance, Prof. Riley is above the average in height, of a bilious, nervous temperament, dark complexion, rather spare and

bony, the face is striking and strong, remarkably mobile, with the ordinary expression rather pensive, serious and concentrated, but beaming with pleasure and humor whenever the Professor is off his work. Socially, he is bright, warm-hearted, and sympathetic. Of late years, he has shown the effects of overwork, against which his friends and family find it necessary to constantly warn him. With so much accomplished; with so honorable a past, it is difficult to predict his future, or the good he may yet accomplish.

[I am under deep obligations to Prof. Riley and the *National Farmer* for data used in the above sketch.]

COURTNEY, Mo., Dec. 25th, 1888.

Mr. L. A. Goodman:

DEAR SIR—Merry Christmas to you, and may you live to see many more in the enjoyment of your position as secretary of the Missouri State Horticultural Society. I had a splendid time at Nevada, and I now see what I missed by not attending the other meetings. Hope to meet some of the "bird" people in June, and will try to prepare a paper on some common phase of bird life for the society's meeting next June. Will also correspond with the other members of committee on Botany to devise some contribution on that subject.

I enclose you a short article on the status of the Botany of Jackson County. My report on the Flora of the state, I have sent to Mr. Tracy, who will submit it to your inspection very soon.

I also send you a few notes on some interesting birds that have come under my notice during the past eight years, and can cite you to Mr. Cameron Mann as the reliability of the report. A greater part of the birds may be seen in my collection, and were you not too busy, you could run down here and examine them.

I should like to hear from you soon.

Very truly yours,

B. FRANK BUSH.

REPORT ON THE BOTANY OF JACKSON COUNTY.

BY B. FRANK BUSII.

In December, 1882, the writer published a list of the plants he had found growing in Jackson County, which included 609 species and marked varieties.

During the season of 1883 and '84, with the assistance of Mr. Cameron Mann, of Kansas City, he was enabled to increase the number of species native to that county to 906, and the result of their united labor was published in February, 1885.

It was the opinion of the authors of the supplement to the Flora of Jackson County that the number of species inhabiting our district would not fall short of 1,000, and the appended list shows how well that opinion was founded.

Particular attention has been given to the Sedges, Grasses and Composites, and the reader will not wonder if their number is out of proportion.

The largest family in our district is the compositae being represented by 140 species. Graminaceae follows next with 117 species, and then come the Sedges with 91 species.

The largest genera of our Flora are Carex, Panicum and Cypems, having respectively 54, 22 and 19 species.

It is thought best that the numbering should be continuous, and when the work is re-written references may be given to plants by numbers.

The writer is under many obligations to Prof. Sereno Watson, Prof. N. L. Britton and Dr. Geo. Vasey, for assistance rendered in kindly determining obscure species, and by notes and suggestions given.

The following list brings the Flora of Jackson county up to date, and should the reader notice any omission he will confer a favor by informing the writer of it:

- 907 *Clematis Virginiana*, L.
 908 *Ranunculus lemosus*, Nutt.
 909 *R. Cymbalaria*, Pursh.
 910 *R. hispidus*.
 911 *Dicentra Canadensis*, D. C.
 912 *Cardamire rhomboidea*, D.C.
 913 *Draba brachycarpa*, Nutt.
 914 *Erysimum Cheiranthoides*, L.
 915 *Saponaria Vaccaria* L.
 916 *Cerastium vulgatum*, L.
 917 *Arenaria Pitcheri*, Nutt.
 918 *Claytonia Caroliniana*, Mx
 919 *Hypericum maculatum*, Walt
 920 *Ceanothus ovalis*, Bigel
 921 *Dismodium viridiflorum*, Beck.
 922 *Amphicarpaea Pitcheri*, T & G.
 923 *Rubus hispidus*, L.
 924 *Geum vernum*, T. & G.
 925 *Potentilla canadensis*, L. var.
 simplex, T. & G.
 926 *Didiplis linearis*, Rof.
 927 *Oenothera biennis*, L. var.
 grandiflora, Lindl.
 928 *Discopleura Nuttallii*, D. C.
 929 *Galium trifidum*, L. var. *lati-*
 folium, Tarr.
 930 *Vernonia Jamesii*, T. & G.
 931 *V. Baldwinii*, Tarr.
 632 *Eupatorium semiserratum*,
 D. C.
 933 *Liatris elegans*, Willd.
 934 *Grindelia squarrosa* Dunal.
 935 *Solidago Canadensis*, L. var.
 scabra, T. & G.
 936 *S. speciosa*, Nutt. var. *angus-*
 tata, T. & G.
 937 *Aster reticulatus*, Pursh.
 938 *A. oblongifolius*, Nutt. var.
 rigidulus, Gray.
 939 *Lactuca Ludoviciana*, D. C.
 940 *Lobelia spicata*, Lam.
 941 *Specularia biflora*, Gray.
 942 *Dodecatheon Meadia*, L.
 943 *Sabbatia campestris*, Nutt.
 944 *Convovulus arvensis*, L.
 945 *Cuscuta decora*, Chois.
 946 *C. decora*, Chois. var. *pulch-*
 urima, Engelm.
 947 *C. Gronovii*, Willd.
 948 *Physalis aequata*, Jacq.
 949 *Ruellia strepens*, Nees. var.
 cleistantha, Gray.
 950 *Lippia nodiflora*, Mx.
 951 *Plantago Rugelii*, Dec.
 952 *Chenopodium glaucum*, L.
 953 *Amarantus hybridus*, L.
 954 *Rumex Patienta*, L.
 955 *Euphorbia Cyparissias*, L.
 956 *Corylus rostrata*, Ait.
 957 *Salix abba*, L.
 958 *S. cordata*, Muhl. var. *ves-*
 tita, And.
 959 *Lemma trisulca*, L.
 960 *Typha latifolia*, L.
 961 *Potamogeton Spireillus*, Tuck.
 962 *Cyperipedium pubescens*,
 Willd.
 963 *Juncus scirpoides*, Lam.
 964 *J. bufonius*, L.
 965 *J. alpinus*, Vill. var. *insignis*,
 Fries.
 966 *Heteranthera graminea*, Vahl.
 967 *Tradescantia Virginica*, L.
 var. *villosa*, Watson.
 968 *Cyperus speciosus*, Vahl.
 969 *C. speciosus*, Vahl. var. *par-*
 vus, Britton.
 970 *C. diandrus*, Tarr. var. *casta-*
 neus, Tarr.

- 971 *C. erythrorhizos*, Muhl. var.
- 972 *C. strigosus*, L. var. *robustior*
 Kunth.
- 973 *C. strigosus*, L. var. *capitatus*,
 Boeckl.
- 974 *C. strigosus*, L. var. *elongatus*
 Britton.
- 975 *C. ferax*, Richard.
- 976 *C. flavescens*, L.
- 977 *C. Fuirena squarrosa*, Mx. var.
- 978 *C. Carex Gragii*, Carey.
- 979 *C. arida*, Schw. & Tarr.
- 980 *C. disticha*, Huds.
- 981 *C. acquatilis*, Wahl.
- 982 *C. umbellata*, Schk.
- 983 *C. cristata*, Schw.
- 984 *C. filiformis*, L.
- 985 *C. filiformis*, L. var. *latifolia*,
 Boeck.
- 986 *C. hystricina*, Willd.
- 987 *C. laxiflora*, Lam. var. *planta-*
 ginea, Boott.
- 988 *C. laxiflora*, Lam. var. *stylo-*
 flexa, Boott.
- 989 *C. retroflexa*, Muhl.
- 990 *C. sparganoids*, Muhl. var.
 minor, Boott.
- 991 *C. stricta*, Michx.
- 992 *C. trichocarpa*, Muhl. var. *im-*
 berbis, Carey.
- 993 *C. tentaculata*, Muhl.
- 994 *C. Crus-corvi*, Shutt.
- 995 *Panicum scoparium*, Lam.
- 996 *P. proliferum*, lam. var. *geni-*
 culatum, Vasey.
- 997 *P. capillare* L. var. *flexile*,
 Gatt.
- 998 *P. capillare*, L. var. *genicula-*
 tum, Scrib.
- 999 *P. crusgalli*, L. var. *muticum*,
 Vasey.
- 1,000 *Beckmannia erucoiformis*,
 Host. var. *uniflorus*, Scrib.
- 1,001 *Aristida gra cilis*, Ell.
- 1,002 *Sparobolus asperifolius*,
 N. V M.
- 1,003 *Trplosis purpurea*, Chapm.
- 1,004 *Poa alsodes*, Gray.

THE SOCIAL FEATURES OF HORTICULTURAL SOCIETIES

BY GEORGE W. HOPKINS, SPRINGFIELD.

Mr. President, Ladies and Gentlemen of Missouri Valley Horticultural Society:

I suppose the above subject has been assigned to me because of my proclivities for lingering long at the dinner table, which event I consider one of the chief social features of horticultural meetings. I want to assure my old friends Holsinger, Goodman, Fisher and Espenlaub, with whom I have had some hard contests on many occasions in the past, that my appetite, if any different, has increased since emigrating to South Missouri. If there be any doubts about the matter, please communicate with the ladies of the Greene County Horticultural Society.

The first horticultural society of which we have any knowledge was found in the garden of Eden. It was originally composed of only two members—Adam and Eve. Everything which heart could wish was placed before them. They had only to reach out and pluck the most luscious of fruit and gaze upon the most beautiful flowers. The social features of this society, up to a certain period, have never been equaled. But by and by a third member was taken into the society in the person of his Satanic majesty, and then commenced dissension which ended in final dissolution.

Had it not been for the introduction of this new member, the human race to-day, without any exertion of their own, might be feasting on ambrosia and nectar sweet. What a happy time the members of that society must have had. Fruit in all its perfection; no borers, codling moth, curculio or gouger was ever known to infest that garden. They had no conception of the warfare which thousands of years afterwards would be waged by the race against the myriads of insect enemies. After the breaking up of this society, thousands of years intervened before the formation of another. Indeed, we might say it is only within the present century that horticulture has made any material advancement. Man was content to take whatever nature provided for him in the fields and forest.

After the formation of horticultural societies, all kinds of fruit began to show a steady improvement in size and quality. The strawberry, from an insignificant wildling, has been brought up to what we see it to-day; the peach, in its original state, was bitter and insipid, unfit to eat, to-day it is worthy to grace the table of kings. The apple, from the wild crab, has been brought up to its present state of perfection, and is one of our staple commodities and a prominent factor in the commerce of the world.

God bless, we say, the noble band of horticulturists, who have done so much to ameliorate the condition of the human race.

The improvements in fruits is not all that horticultural societies are doing for the good of the communities in which they exist. There are times in the history of every individual, when the weight of care and sorrow seems more than we can bear, when every earthly friend seems to have forsaken us, and even the God of Heaven refuses to smile upon us, and we are led to exclaim, "It would have been better had we never lived."

But when we go to these meetings and see tables loaded with luscious fruits and beautiful flowers, receive kindly greetings and cheerful smiles from those assembled, we return to our home better prepared to continue the struggle in the great battle of life.

Horticultural meetings are calculated to break down that spirit of selfishness, which pervades society to an alarming extent. Horticulturists have no secrets. Whatever they find out by experience and observation, is brought out at these meetings and all are mutually benefitted.

One of the greatest of the social features of these meetings is the presence of the ladies. How cheering it is to man to see the dear creatures for a while, put away the cares and toils of domestic life, prepare a well filled basket, cut some of their most beautiful flowers, and repair to the place of meeting to gladden the hearts of all present. But man's cup is full to overflowing when the tables are covered with linen drapery, and the contents of baskets are spread out in tempting array, and the president announces the welcome fact that "dinner is ready."

How quickly vanishes the frown from the brow of the lords of creation as they fill up on the good things the ladies have set before them.

I do not believe in the old adage that a man's heart is more easily touched through his pocket. I believe that part of the human anatomy is more susceptible of impression through the stomach. Ladies, take notes be the wayside.

Horticultural pursuits have a tendency to elevate and enable man to bring out all the finer feelings of humanity. I have no statistics at

hand, but will venture the assertion, that but few horticulturists are ever found behind prison bars. Idleness is generally the author of crime. No horticulturist will ever be successful except through the free exercise of brain and muscle. Success to all horticultural societies ! may they continue to grow and increase until their social influence is felt throughout the length and breadth of our country.

I believe I can truthfully say that some of the happiest hours of my life have been spent in meetings of horticultural societies. When the angel reaper—death—shall come to summons me across the dark river, let no ceremonial rites be performed over my grave. But beneath the spreading branches of some grand old subject in Pomona's realm, surrounded by veteran horticulturists with whom I have labored long, let my last resting place be covered with the sweet symbols of love from Flora's hands.

HORTICULTURE AS AN EDUCATOR.

BY J. A. KENNEDY.

Horticulture embraces in its common usage, Pomology, or fruit culture and Flora culture. Its territory is included in the vegetable kingdom. Its book of science Botany ; its paternity, nature and nature's great author. Its lessons, purely elevating.

Nature has her teachers as well as her books, and to the careful, attentive student who can find books in brooks, teachers in rocks, lessons in leaves and music in everything, there is practical and useful information in the pursuit and investigation of the vegetable kingdom, in all its wide range and numerous divisions, and especially in the cultivation of, and familiarity with fruits and flowers, as well as the products of the garden and the field.

We are entitled to the useful and the beautiful ; they are scattered along our rugged and toil-worn pathway through life to counteract the gloom of a sin-cursed earth and enliven and cheer our haltless march through time. Whatever is useful, whatever is beautiful, is worthy of our care and labor, whatever advances in science, in morals, in virtue should be encouraged.

Horticulture educates—all things educate, but in different channels. Some educate upward, some downward ; some are elevating, some degrading. Says an authoress of an excellent work on Botany : "The study of nature, in any of her forms, is highly interesting and useful. But the heavenly bodies are far distant from us ; and were they within our reach, are too mighty for us to grasp. Our feeble minds seem overwhelmed in the contemplation of their immensity. Animals, though affording the most striking marks of designing wisdom, cannot be dissected and examined without painful emotions. But the vegetable world offers a boundless field of inquiry, which may be explored with the most pure and delightful emotions. Here the Almighty seems to manifest Himself to us, with less of that dazzling sublimity which it is almost painful to behold, in His more magnificent creations ; and it would seem, that accommodating the vegetable world to our capacities of observations, He had especially designed it for our investigation and amusement, as well as our sustenance and comfort."

The study of botany naturally leads to greater love and reverence for the Deity. We would not affirm that it does, in reality, always produce this effect, for, unhappily, there are some minds, which, though quick to perceive the beauties of nature, seem blindly to over-look Him who spreads them forth. They can admire the gifts, while they forget the giver. But those who feel in their hearts, a love to God, and who see in the natural world, the workings of this power, can look abroad, and adopting the language of a christian poet, exclaim, "My Father made them all."

Agricultural societies should be educators of good, and were intended as such, but like nearly all things else, if not properly guarded, may be taken possession of by the evil one, and run in the interests of vice. It is no longer an uncertainty that our county agricultural societies are degenerating into grounds where more evil, than good seeds, are sown. It is no longer a doubt that our Fairs, of the present day, are educating downward. While there is an assumed control, by regulated boards of directory, chosen officers and established rules and systems of order, yet there is an undercurrent control of the speed ring, by secret plans and combinations of trained and experienced tricksters that the honest

farmer knows but little about. If horse racing is demoralizing, if betting and gambling are evil practices, then must our Fairs be evil teachers. If you would know where our children and youth spend their time, and what lessons they learn at Fairs, just listen at their conversation when returned home. They know all about the racing, and are familiar with the betting, and every word and phrase connected with this, the most prominent department of the grounds. And here nearly all the attractions of the Fair ground are thrown, here is where the money is expended, here is where the music is stationed, here is where the band plays, and here are the greatest attractions, and instead of the useful and beautiful getting the chief encouragement, and the large premiums and the greatest attractions, they go to the worthless and the useless, and hence a class of professional jockeys take in the circuit of the Fairs, make large money by trickery and private arrangements, on something absolutely worthless for all practical purposes, scooping up the heavy purse, while the unsuspecting farmer, with an honest horse, is left behind. And to carry the evil influences still further, the grounds are usually well supplied with all manner of games and gambling devices with all the modern improvements. Now pause and ask ourselves the question, who gets the greater part of all the money spent at, and in connection with, the Fair? It is no longer a question with the teachers of morals and religion, that the Fairs are educating downward, and must be either brought under different regulations or abandoned by christian people.

Horticulture in all of its branches, witnessed as well from the growing, blooming and fruit-bearing trees, shrubs or vines, as in the displays at the public gathering of the society and discussion among its members, in the dissemination and exchange of seeds, as well as seed thoughts and in its cultivation and strengthening of the social relations, is all elevating. It would be difficult to cultivate, or even harbor avarice, or hate or any of the baser passions 'mid a display of fruits and flowers.

The gain is not a pecuniary one, its chief good is in its moral training and no one can help but be the better for having engaged in the work of the society. All can take a part. Man can honor it, woman can adorn it, and children can enliven it. It will return a smile to each. It is a civilizer and the wild savage is drawn nearer the enlightened as he is taught agriculture, and his love for gardens, orchards and flowers expanded. Says Bacon: "Fine gardening marks the progress of civilization." Home is made more attractive, and a love for home increases, when adorned and surrounded with well cultivated gardens, rich with esculents, beautified with flowers, 'mid the smilings and the greetings of fruiting orchards and waiving evergreens. Such a home tends to the

expansion of mind and soul and leaves good and lasting impressions. A more forlorn, lonesome and ghastly sight can scarce present itself to my imagination than a lone dwelling standing like gloom upon the broad prairie, destitute of the surroundings of a tree or shrub. No flower smiling on earth ; no bird to sing in air ; no music among the leaves, treeless, shrubless—a picture of despair. Even the well-adorned cemetery, "where the rude forefathers of the hamlet sleep," has more attractions than such a home.

Horticulture teaches love. Love for the useful and beautiful—love for labor—love for home—love for country—love to God. From it we are taught to respect and to give honor due to honest toil. The producer is the true source of wealth of both community and country. The sturdy laborer is the real benefactor of society—the strong bulwark of the government, and the nation's strength and support. The hard hand of honest toil is the hand most worthy the warmest grasp. The weather-beaten and sun-tanned face is the one to receive our most generous greeting.

Our teacher encourages and instructs us to practice as well as to inculcate the honor and dignity of labor, and to cheer and reward the genuine son of toil, by defending the true worth of his profession, encouraging his life and exalting him to the highest rank of position and profit.

"Yes, to labor is divine,
Pass the watch-word down the line ;
Pass the countersign—endure,
Not to him who boldly dares,
But to him who nobly bears,
Is the victor's garland sure."

Whatever adorns and exalts should be encouraged for its influence upon the mind and the heart. Arbor day should be strictly observed. Although one of the last, though by no means the least of the fixed days, whose annual return should be sacredly observed and honored in the grand work of tree planting ; teaching the children to look forward to its coming with bright anticipations and the faithful fulfillment of its requirements, by setting at least one tree or shrub, that will tell in the future, and stand as a living monument, bearing the inscription that life was not in vain, that we lived for others.

"The works of the person that builds begin immediately to decay ; while those of him who plants begin directly to improve."

All honor to the man whose head and heart conceived the idea of Arbor Day. Reward him with due honor while he lives, for every grove and tree, planted in pursuance of that day, will stand in the future to record ascribed praise to his memory. What a grand and potent teacher is Arbor Day, and what a wonderful improvement it will enhance to our western prairie states. The destruction of our forests was the work of the past, their improvement will be the work of the future.

“ Plant trees, my friends, plant trees to-day
Beside your cottage doors,
And let their leafy shadows play
With sunshine on your floors.

Plant trees, that birds may build their nests
In bowers that you have made,
And children play and tire and rest
Beneath their grateful shade.

Let oaks and lindens round your field
Like stately monarchs grow ;
With iron arms your home they'll shield
'Gainst wintry winds and snow.

Let hemlock, spruce and fragrant fir
And hardy graceful larch
Stand guard against the gales and stir
The boisterous days of March.

Let locust scent the breathe of May,
Cool April clothe the Prune,
And Chestnut blossoms, blithe and gay,
Wave in the air of June.

Plant trees along each thoroughfare,
And let the branches meet
Above the country roads and o'er
The city's dusty street.

Let willows fringe the sparkling stream
And poplars line the lane,
And let the maple's silver gleam
Be seen upon the plain.

Let clm and ash their shadows fling
Across the murmuring rills,
And let the pine's *Æolian* strings
Make music on the hills.

Plant trees and something better leave
Your daughters and your sons
Than 'twere to have your name engraved
On marble shaft or bronze.

How much nobler—how much more like the example of the great Teacher “who went about doing good”—to contribute to the comfort and encouragement of the living—to adorn the path-way of the soldier in life’s struggle—whether as the student of nature or science, pouring over his well used volumes in ardent pursuit of knowledge, battling against misfortune and poverty, or the hard handed toiling laborer, breasting wind and tide, contending against want and oppression, and worst of all, against unjust and discriminating legislation—or the teacher, whether of the school room imparting scientific instruction to the youth of our country, scattering light and knowledge over the land, or the more exalted teacher of righteousness, sowing the seeds of eternal life among the erring and vicious at home or the barbarous heathen of uncivilized lands abroad, mid scoffs and persecutions—how much better to help on the weary traveler through time, than to obstruct and thorn the path-way of his progress in life, and then seek to make amends by decorating his grave when the struggle of life is over. How much more happiness one flower to the living than all the roses and lilies of the floral kingdom to the dead.

“Friends do not wait,
Till frozen are my heart’s aching chords
To utter tender and loving words ;
And if you have some precious flowers to give,
I would have some of them, while yet I live.”

Would that we could call a halt to the custom so prevalent to-day, especially in the world of politics, of tearing down, retarding and slandering through life, then feigning to cover up by heaping honors upon their house of clay. ‘Tis said, that

“ Seven cities claimed the Homer, dead,
Through which the living Homer begged his bread.”

It is but miserable comfort at least, poor consolation, indeed, for the soldier in life's battle for truth and right, laboring under the lashes of persecution, "The whips and scoffs of time, the oppressor's wrongs, the proud man's contumelies," to be rewarded only with the unenvied privilege of feeling that when he lays down his arms and "has shuffled off this mortal coil" and gone to his rest, somebody, to keep up the form of a useless custom, may, formally, drop a withered flower upon his grave.

"Oh ! its a sad and bitter world, indeed," exclaimed the exile of Erin, "For a man never has any flowers put on his grave until he is dead."

Our Society would teach to labor for the living, to "Trust no future, however pleasant. Let the dead past bury its dead."

"Act, act in the living present,
Heart within, God overhead."

I close by appropriating the last stanza of the beautiful and practical address of the women's president, at their last national convention :

"O, friends, I pray to-night,
Keep not your kisses for my dead, cold brow ;
The way is lonely, let me feel them now.
Think gently of me ; I am travel worn,
My faltering feet are pierced by many a thorn,
Forgive ! O heart estranged, forgive, I plead ;
When dreamless rest is mine, I shall not need
The tenderness for which I long to-night."

APPLE CULTURE.

COST AND VALUE OF AN APPLE ORCHARD CALCULATED WITH FIGURES.

BY JACOB FAITH.

The most important and general culture is the apple that extends nearly or quite through the year, by making judicious selections of summer, autumn and winter sorts,

There is no farm crop, which on the average will produce half as much income per acre as a good apple orchard. But as it takes five to eight years to come into bearing, some people hesitate to plant, regarding the time and expense in a great measure lost. In reply to this let us figure on that and see.

Fifty apple trees is about the number on an acre, but as small trees should stand thicker to protect each other from the wind, therefore, plant double that amount, as follows:

100 trees on an acre costing.....	\$	8 00
Planting one acre in 100 trees.....		2 00
Washing or wrapping to keep rabbits and borers from hills....		50
Culture of the one-fourth of an acre.....		2 00
Rent the one-fourth acre, the balance three-fourths can be planted in cultivated crops, berry vines, castor beans, tobacco, etc.....		50
Total, first year.....		\$13 00
2d year, interest at 10 per cent.....	\$	1 30
Rent.....		50
Pruning.....		50
Culture.....		2 00
Washing.....		50
Total.....	\$	17 80

3d year, interest.....	\$	1 75
Rent.....		50
Pruning.....		50
Culture.....		2 00
Washing.....		50
 Total.....	\$	23 05
4th year, interest.....	\$	2 31
Rent.....		50
Pruning.....		50
Culture.....		2 00
Washing.....		50
 Total.....	\$	28 86
5th year, interest.....	\$	2 88
Rent, one-fourth acre.....		50
Pruning.....		70
Culture.....		50
Washing.....		2 00
 Total.....	\$	35 44
Credit, the 5th year apple trees commence bearing, say one peck to the tree, 100 trees 25 bushel, at 20 cts per bushel in the orchard, gives credit, which deduct.....	\$	5 00
Leaves bal. due.....		30 44
6th year, interest.....		3 01
Pruning.....		50
Clover seed, sowing and plowing.....		8 00
Rent, the 1 acre.....		2 00
 Total.....		\$43 95
Credit to $\frac{1}{2}$ bu. apples per tree, 50 bu.....	\$	10 00
 Balance due.....	\$	33 95
7th year, interest.....	\$	3 40
Pruning.....		50
 Total.....		\$37 85

Credit 1 bu. and a pk., 125.....	\$ 25 00
And to credit to wind fallen apples and clover for hogs.....	10 00
Balance due.....	\$2 85
Eighth year, 3 bu. per tree, 300 bu.....	\$ 60 00
Hog pasture.....	10 00
Total.....	\$70 00
Deduct bal. due.....	\$ 2 85
Washing and pruning.....	1 00
Leaves credit for orchard.....	\$66 15
Ninth year, 500 bu.....	\$ 100 00
Hog pasture, over pay washing and pruning.....	10 00
Leaves total of.....	\$176 15
Tenth year, 700 bu.....	\$ 140 00
Total.....	\$316 15

The tenth year, one-half, 50, of the trees should be cut out, the wood should pay for that work, and the clover turned under, when the seed ripen enough to seed the ground again, for which

Deduct.....	\$ 2 00
Washing and pruning.....	1 00
Total.....	\$ 3 00
Leaves balance.....	\$313 15

At this calculation and figures one acre of apple orchard would bring \$313.15 over the expense that it cost the first ten years. These figures both in yield and price have been doubled. I picked over one bushel of apples from a five-year-old tree, and over twelve bushels from a ten-year-old tree.

What will a 10 acre more orchard pay with a good selection and culture? But, like corn, one hill is too much for profit, if no care and culture is given.

People are getting more interested in fruit-growing, judging by the letters received inquiring what to plant and how to cultivate.

DISTANCE TO PLANT.

Remember the above described number. If the object is to have the standard apple trees 32x32 feet each way in a diamond form instead of 30 feet in a square. In the planting, say in the row running north and south opposite each 30 feet or standard tree, is the tree to be cut out when their room is needed. 50 trees on an acre 32x32 feet each way, set in a diamond form, are left after the middle tree is cut out would be inconvenient for culture, more than the 100 planted as described.

Every day in fruit culture brings new ideas. In all my writing about fruit and its cultivation, this is the first paper that I give my views in figures, but let each good thought be fitly written, wherewith to encourage fruit culture and lessen the labor. So it cannot be said, when we are numbered with the dead, that we ate the fruit of trees and vines planted by our fathers and in return did not plan for our children and successors.

I wish to leave this world better than I found it, and place on record that I have been here, that it may be said, he is missed, but the work of our hands, the bloom and fruit on the trees and vines, and evergreens in winter will tell that we have been here. So we should plant fruit that will give us pleasure and treasure, to shed their blessings on millions when we are no more.

JACOB FAITH.

SCIENTIFIC FRUIT CULTURE.

Editor Rural World:

I have thought a few ideas on the above subject would not be considered unacceptable, and I present them with the hope that some of our veteran horticulturists, who are so much better qualified, will take up the refrain, and more plainly teach us the way.

To one who has made a study of this subject, it is not hard to see that he who would reap the best results from fruit growing, must adopt very different means in the growth, care and sale of fruits in the future.

than those in vogue in the past. The fruit grower of the future cannot afford to make mistakes that can be avoided by profiting by the mistakes and failures of those who have already made the costly experiment. One prominent source of error is in the selection of varieties. He must select for extensive planting only such varieties as have proven to be adapted to his locality and soil. Not only shall the variety be one of established character, as regards productiveness, but must have a character in the market he would supply. Having made his selections, and planted and cared for them, according to methods advocated by our most advanced horticulturists, he has now presented to him the greatest problem of all, and that is, the gathering, handling and sale of the product of the orchard, vineyard and berry patch. It is a mistake to suppose that fruit invariably sells at a profit to the grower. There is a very large part that does not, and a very small part, indeed, that brings such a price as it would under the best conditions. And those conditions are such, that it is almost impossible for the average fruit grower to apply them. To call attention to this state of affairs, is the intent of this article. That community, which has supplied itself with all the modern appliances for the preservation of fruits, which means with canning and evaporating establishments, with cold storage rooms and refrigerator cars, in a word, are prepared to grow, to handle and to preserve fruits in a scientific manner, have a measure of success guaranteed them such as but few individuals could ever hope to attain, on account of the expense involved.

Therefore, it seems absolutely essential that to obtain the best results, we must have organization of some kind, either through horticultural societies or by forming companies with sufficient capital to not only grow fruits extensively, but to be able to supply themselves with the best of facilities to care for the same in whatever manner their judgment at the time, would consider advisable. In order to more plainly point out in detail some of the advantages of such a system, we need only apply it to the handling of the small fruit crop. With a means at hand to can or evaporate strawberries, raspberries, blackberries, cherries, etc., an over-crowded market need not be dreaded. I am informed by a practical canner of 12 years' experience, that any of the above fruits can be handled profitably at 5 cents per quart, or \$1.60 per bushel.

In other words, the canner can pay that, and no expense for package, no commission, no transportation charges, no stealings; besides, with such facilities, all inferior fruit can be utilized, and none but "extra select" sent to market, and it is rare, indeed, when the latter would not bring remunerative prices.

With cold storages, such fruits as grapes, pears, and apples might be held for months in almost perfect condition. Grapes last fall would not net the grower 1 cent per pound. To-day the same fruit is selling on our streets at eight or ten times that amount, shipped from the cold storage rooms on the shores of Lake Erie to Southwest Missouri. After March 1st, Jonathan apples that would not bring 25 cents per bushel at picking time could be held in perfect condition and sold at this time, for three or four times as much. Illustrations could be added indefinitely, proving that the time is not far distant when communities that do not supply themselves with all these preservative appliances for the care of fruits, will be driven out of the business by those who do. "The world do move." This is an unfortunate circumstance to some, but to the wide-a-wake horticulturists, it is just as he would have it. I trust the *Rural World*, with its extensive acquaintance with those best qualified to instruct us on this most important subject, will invite discussion on it, and help to usher in this new dispensation in the fruit industry of Missouri.

J. G. KINDER.

REPORT OF ILLINOIS AND IOWA STATE HORTICULTURAL MEETINGS.

BY CHAS. PATTERSON, KIRKSVILLE, MO.

Again, for the third time, I attended both these meetings, with the greatest satisfaction, and think they might as well enroll me for a life membership, unless they should conclude to go away out of my reach. I am well enough satisfied not to be a regularly appointed delegate as it leaves me under no special obligation to give a synopsis of their proceedings, which, as I could make it, would probably be still more uninteresting than a rambling report like this.

While I learn to appreciate these societies more and more, I seem to gain a higher estimate of our own society also. I was quite gratified to hear our exhibition in St. Louis, very highly spoken of, in one of the papers in Illinois, showing that it will not only be long remembered by the many thousands who enjoyed it on the spot, but will be also a matter of record in their proceedings. I am glad and proud of our horticultural society, and especially of our officers. Glad that we have the good sense to re-elect them every time, or as long as they do better service for the state than any others could, and not consider it merely an honor to be passed around in turn.

Would that our leading and average farmers could see their own and the general interest as well as horticulturists do. We could then have farmers' institutes somewhat like surrounding states, instead of electing men to office who traduce and vilify anyone who tries to urge improved farming, and cut off any proposed or existing pittance of appropriation for the direct benefit of agriculture, and this, not only by recognized demagogues, but by bona-fide grangers themselves, as was done with the State Entomologist.

The southern two-thirds of Illinois, and one-third of Iowa, seemed to have had as full a crop of apples the past year, as the age and condition of trees could possibly yield, just as in our state. Any considerable distance north of this zone, there were but few trees left, except of a few iron clad varieties, mostly summer and fall. The intensely anxious agitation and search for hardy varieties for this northern belt, has checked or retarded planting far south of it, as well as in the belt itself, which last year's crop will retrieve to a great extent. The idea of top-grafting favorite varieties on iron clad nursery trees, may be gaining some advocates, but it is not likely to become generally or extensively adopted. The ultimate success in finding or originating iron clads as good as any of our old sorts, can not be mistrusted when we know something of their extensive and energetic efforts. In fact they have now specimens that abundantly prove it can be done. But when we consider the length of time required to fully demonstrate all desirable qualities, and the numerous possible discoveries of defects concealed by the ever varying seasons, etc., etc., our old varieties would seem to have a large field of usefulness yet open before them.

I was quite surprised to find two men from Union County, nearly on the same water-shed as I am, in south central Iowa, who reported successful and profitable pear orchards of hundreds of trees. The blight had never been destructive, which they attributed to judicious cultivation, whatever that may mean. As well as I could learn from them, it

means to keep the tree growing in its natural season, and then quit. If we understood how to accomplish that, I think we could just as well prevent the disastrous effect of arctic winters also. While we may never attain this knowledge, even as well as doctors can judge the probable course of disease by the symptoms, we may at least, turn our attention in this direction, and learn, afterwards, how a certain course would have prevented disaster. If we commence cultivating early, and never neglect it enough to compel the tree to cease growing in the late summer, as Prof. Burrill told us in Illinois Society, last year, we may prevent the unseasonable, very late, second growth, and leave the tree in good condition to withstand climatic changes and severity, instead of inviting destruction of any and all kinds.

It would seem that they could at least grow all the small fruits in those higher latitudes that we can, but they certainly have a better excuse for not doing it than we have. It is considered decidedly unsafe to leave any variety of grapes, raspberries and blackberries unprotected in winter, as well as strawberries. It is not claimed to be such a formidable job as I had imagined, especially if commenced and kept up from the first year of planting, and I am inclined to believe it would pay well, on the average, even south of here, but we might as well tell our people that such luxuries are not in their reach, as to instruct them how to do this. On selfish principles, I think it would pay some of us to make a regular practice of it, as the only successful way, and we would soon have a monopoly.

SOME RARE OR LITTLE KNOWN BIRDS OF MISSOURI.

BY B. FRANK BUSH.

Missouri has a large and varied avi-fauna, due principally to the great breadth of territory, from north to south, which gives it a very great variety of climate and soil. Its large and diversified Flora fur-

nishes food and attraction for many birds, and consequently their animal subsistence is greater. Birds of the plains here find a home in the summer; birds of the north here find their food in the winter; birds of the warm tropical south follow their food, the insects, here in the spring; birds from all parts of America are residents here at some season of the year, and their number is not greater in summer than in winter, but the number of species is larger. Of the birds that I have shot in Jackson county, the following are not generally known, yet are very common at some season of the year—at least most of them. You may not see them yet they make themselves known by their voluble strains, and tender earnest songs. This list includes a number of summer residents, who come here year after year to build their nests and rear their young, whose food is principally insects, but one of this group being granivorous. A lesser number of migratory individuals, who are to be seen and heard in our borders, the first half of May and the last weeks in September, whose sole food is insects, which necessitates their migrating to latitudes where their prey abounds. There are included two winter visitors, who serve to break the dull, dreary, monotonous winter weather, by their lively chirping and sprightly ways. One individual is a permanent resident, and may be found at any time of the year.

Beginning with the summer residents, we may as well head the list with that perfect little beauty of a creature, the Golden Warbler.

PROTONOTARIA CITRIA (Golden Warbler).

A beautiful little creature, inhabiting shrubbery, very common in spring and early summer, but not visible later in the season; certainly nesting here, as we collected the eggs of this species last season, and this season we found one nest in a hole in a cottonwood snag, which was afloat in a little lake near Courtney.

SEINRUS NOVEBORACENSIS (New York Water-Thrush).

An inhabitant of low tangled woods near the water, where its quavering *pe-a, pe a*, is oftener heard than its owner is seen. We have not seen its nest, but as it stays late into the summer, we infer that it does breed here.

GEOTHLYPIS FORMOSA (Kentucky Warbler).

In early summer an abundant little warbler in low shrubberies, where it gleams like gold as it flits from bush to bush. Although no pains are taken to conceal their nest, which is a large shallow affair, we have been unsuccessful in finding one.

GEOTHLYPIS TRICHAS (Maryland Yellow-Throat).

Like its brother species, preferring underbrush along streams, where its hearty song may be heard through the early summer. Its nest is rather large and bulky, very carefully hidden, which accounts for non-success in finding them.

EMPIDONAX TRAILLI (Traill's Flycatcher).

A rather melancholy little inhabitant of woodlands, where its *he-wink, he-wink*, is more often the only indication one may have of its presence. The nest of this and the next has not been observed as yet.

EMPIDONAX FLAVIVENTRIS, (Yellow-Bellied Flycatcher).

A rare little bird here, scarcely distinguishable from the last, but whose habits are different. Its note is a soft *pe-a*, slowly repeated.

COCCYGUS ERYTHROPHTHALMUS (Black-Billed Cuckoo).

Not observed here until this season, and then in some numbers, but not so abundant as the Yellow-Billed Cuckoo. The nest is very similar, but prefers low bushes, and the eggs are somewhat darker.

SPIZELLA PALLIDA (Clay-Colored Sparrow).

An early comer, frequenting copses and woods, not very common. We have not seen its nest, but it certainly nests here, as it may be found late in the summer.

DENDROECA AESTIVA (Summer Warbler).

One of the liveliest little songsters of the orchard or the wood, making a pretty, gleaming spot, as it flits from tree to tree in the spring; its nest is a neat, compact little structure, usually saddled in the fork of a bush near the ground.

HELMINTHOPLILA CHRYSOPTERA (Golden-winged Warbler).

A beautiful little being, inhabiting shrubbery and underbrush, where it gleams like a thing of gold, as it darts amid the pale green verdure. The nest has not, as yet, been observed.

VIREO BELLI (Bell's Greenlet).

An infrequent inhabitant of shrubbery along the prairies, but not so common as the next. The nest of this and all the Greenlets is a neat little affair, usually pendant from the branchlet of some bush or low tree.

VIREO OLIVACEUS (Red-eyed Greenlet).

A very tireless little songster, whose voluble strains are oftener heard than the owner is seen.

VIREO GILOUS (Warbling Greenlet).

Of rare occurrence here, and we have not been able to study this modest little warbler, whose liquid strains tend to soothe the tired ear and lull the wearied brain.

VIREO NOVEBORACENSIS (White-eyed Greenlet).

A sprightly little inhabitant of woods and tangle, much oftener heard than seen.

VIREO FLAVIFROUS (Yellow-throated Greenlet).

This species resembles the yellow-breasted chat (*Icteria virens*), whose habits it seems to have also imitated. Occasionally in deep woods.

Of the strictly migratory species we have not been able to study much of their habits, but we can give the names of those taken in this county while passing through.

REGULUS CAENDULA (Ruby-crowned Kinglet).

Has been collected here for years, and said to nest in this county but there must be some mistake about it. It makes its appearance very early in April, and we have not observed it later than the first of May.

GEOTHLYPIS PHILADELPHIA (Mourning Warbler).

A rare or very local species, not observed in any great abundance, but collected here since 1854 at long intervals. Not known to breed in this locality, but nesting along the British borders.

SETOPHAGA RUTICILLA (American Redstart).

Appearing in this locality early in May, or even in April, remaining till the great host of migratory birds has almost passed, when it follows in the rear of the Black Polls.

HELMINTHOPHILA RUFICAPILLA (Nashville Warbler).

Appears early in the van of the migratory species, and can only be found here for a few days in May.

DENDROECA CORONATA (Yellow-crowned Warbler).

Abundant during the first few days of May and then it takes its flight to the far north.

DENDROECA STRIATA (Black-poll Warbler).

Migrates very late in the spring, bringing up the rear of the migratory species.

MYRODIOCOTES PUSILLUS (Black-capped Warbler).

An exceedingly handsome little bird, abundant in early spring. For want of time we have been unable to study the habits of these transient visitors, but we know that they are beneficial to man, as they are strictly insectivorous.

We will notice our little winter visitors next.

SPIZELLA MONTICOLA (Winter Chip Bird).

A familiar inhabitant of shrubbery, taking the place of the chip-bird in winter, from which it is not distinguished by the country people.

PASSERELLA ILLIACA, var. *SCHISTACCA* (Slate-colored Fox-Sparrow).

Appears here in great numbers in February, with the Fox-sparrow, but more numerous. At this season of the year, the birds have a decided blackish appearance, especially the head, which is nearly all black.

The only permanent resident in this locality is the

SPIHYROPICUS VARIUS (Yellow-bellied Woodpecker).

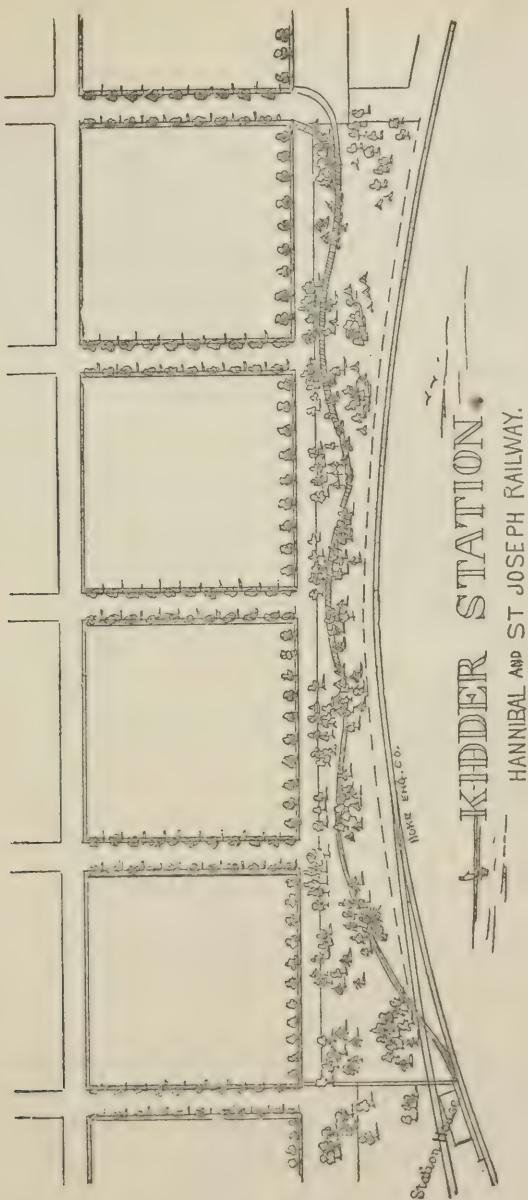
This is usually called sap-sucker, but as farmers apply the term indiscriminately to several species of small wood-peckers, we would say that it would be well for them to learn to distinguish this species, as it is quite injurious to orchards and small fruits.

We have, perhaps included several species that are known to farmers generally, but we think there is no record of their having been taken in this part of Missouri.

KIDDER, MO., RAILWAY STATION.

The cut shown on this page is an illustration of the design presented by Prof. M. G. Kern, landscape gardener and western agent of the United States Bureau of Forestry, for the improvement of the railroad station grounds at Kidder, Caldwell County, Mo., on the Hannibal and St. Joseph railroad.

The town lies on the north side of the track, and the depot is near the western side of the town, as will be seen in the cut. The principal business street of the town is next to the road, all the buildings of which are on the north side, and is 100 feet wide. By Prof. Kern's plan, fifty feet of this street and all of the railroad right of way down to the tracks is to be graded off and converted into a little park. A winding walk will pass through the park and connect with all of the walks on the streets. These connections are not properly shown in the cut.



This plan was laid before W. F. Merrill, General Manager of the H. and St. Joe R. R., and heartily approved by him and he promised the assistance of one of his civil engineers, who would see that the grading was done properly, and also promised that the Kidder section gang should do what it could in executing that part of the work. It only remains, therefore, for the people of Kidder to take hold of the work, do

what little grading is necessary, lay out and make the walks, and begin the planting of the trees and shrubs.

This work of ornamenting railway station grounds is a part of the work undertaken by the Missouri State Horticultural Society, and it was under its auspices that Prof. Kern prepared the design. Kidder Station has the honor of being the first that the Society has undertaken to ornament. If other towns desire to have the advice and assistance of the Society in this direction, they should address the Secretary, L. A. Goodman, Westport, Mo.—*Colman's Rural World.*

OUR FAIRS; DO THEY OFFER SUFFICIENT ENCOURAGEMENT TO HORTICULTURE?

BY L. A. GOODMAN.

No, they do not, and I speak of horticulture in its broadest sense ; including fruits, flowers, vegetables and ornamentals.

Yet, you talk to them about increasing the premium list of our fairs in the department of horticulture and their cry is, it does not pay ; it draws no crowd. We know this is true now and here, for, to make a failure, just try a horticultural exhibit here in the west and you will see the crowd it will bring. Even the horticultural exhibit made by the Mississippi Valley Society a few years ago was a financial failure.

But this failure is not because people fail to appreciate our fruits or flowers or vegetables, for we know that they do appreciate them.

At the recent exhibition of fruits at St. Louis, it was admitted that we had the most instructive, as well as attractive, displays in the whole building.

But this failure is due to a variety of articles for the people to see and admire. Do you believe it ? Look at our fat stock shows ; it costs thousands of dollars more than they get for admission.

Look at our displays of manufactures ; it costs ten dollars where one is taken in at the gates. Look at our merchants' displays ; they never pay. Look at our stock shows ; they never are a financial success.

I say now that a good fruit and flower show will go nearer paying its own expenses than any other single enterprise.

But what we need to do is not to judge any one of the departments of our "fairs" or expositions as the only one which pays. As a whole we need all these to make up a good fair or exposition, and it would be a poor show at any of our places if all horticultural and agricultural products are to be left out.

I say then that our horticultural displays are as attractive a feature as there is in the whole range of specialities, and that it draws the finer thoughts of our people out.

How, then, can our fairs afford to offer any premiums at all ? Why should not our horticultural exhibits be made just as are all other displays, for the purpose of advertising. Our merchants, our manufacturers, our business men, make their displays without any pay or premiums, why should not the horticulturists ?

The answer to all these is plain. In our fairs and expositions it is well, and is necessary to show all our manufactured articles as also all our products. Now, one is the complement of the other, one is needful to the other and both are necessary to make a complete exhibit.

Our merchants and manufactures make their exhibit, and reap their reward in increased sales and extensive advertising.

In all exhibits of the products of the soil, no one man or set of men reap any real benefit. But all the benefit accrues to the county or district as a whole ; the expense is borne by certain individuals, and they are satisfied if, in the end, they receive enough premiums to pay expenses.

I believe that the whole plan of our horticultural displays and the premiums offered should be revised. I think that, besides the money given by the fair association, we should have a liberal sum appropriated by each of our counties to some good, live men to use in making the displays and to pay the necessary expenses.

For all individual effort of what each one grows himself, I think the correct plan is to offer premiums, but only so far as their own growing is concerned.

I believe in the line of our fruits these premiums should be offered, not wholly by our fair associations, but that each county should use some

of the people's money for this very purpose, and at least duplicate many of the individual premiums offered by the fair associations.

Take for instance our large expositions and fairs. Let each county offer premiums of about \$50 or \$100, for displays made by individuals, divided up in a systematic and judicious way so that it will bring in a good lot of fruits and vegetables. Let ten, fifteen or twenty of our counties do this and we would get together some horticultural displays worthy miles of travel to see.

Besides this, let some \$50 or \$100 be given to some good man of the county to use in making a general collection of horticultural products for the advertisement of their counties. Some ten, fifteen or twenty such county displays, not too large, but neat and compact, would be the means of bringing thousands of dollars into their counties, and the people would pay for it as it should be, and not a few individuals.

All this could be arranged in a systematic whole very pleasing and very attractive.

The authority for all this is to be found in Section 4057, Revised Statutes of Missouri.

Besides all this, our counties should be the educators of our people in better fruits, better seeds, better plans of growing, better means of cultivating, newer varieties, and many other important facts, which our people should know to the best development of our interests.

It is not right, nor is it just, that our fair associations should pay for all this valuable information. Our counties should take a prominent hand in the amount of money used in our displays, and my word for it, we would see less of the gambling games and swindles and of the (so-called) only attraction, horse-racing, so prominent in all our western fairs.

A complete change in our mode of conducting our fairs in this department will be a blessing to the people. Let the horse-races be races, and let our fairs be displays of our manufactures, live stock, and products of our land.

I look forward to the time when we shall see a great majority of our people not only favorable to such a scheme, but interested in it enough to come out, not only once, but many times a week to see it.

I should be glad to see our people as interested in our horticultural products as are they in Boston in their horticultural society. A dozen or more displays are held by this society each year, and thousands of dollars are given in premiums, and yet it is all returned to the society by the admission of the public to the displays in the payment of a small admission fee.

The fact amounts to simply this ; the more people you get interested in such matters, the more influence you exert and the greater the attendance. When we can get our counties to take hold of this matter, through their county courts we will get the influence of many of our best producers, and we will see the money ready to pay for all such shows.

I shall be glad to see this change in our premium lists, and also in our way of exhibiting. We all dislike to see the petty jealousies which are often awakened by the vain competition, and especially between different counties of the same state.

I hope to see a change in all this order and see the time when in all our horticultural shows, each man will do his best, and each county will use every effort to make just the very best showing of their products it is possible to make and there will be no competition, only such as the general public will place on each display as they view it. It will save a lot of worry and ill feeling and give much more satisfaction in the end.

In the displays made by our florists, I believe this, by far, the best plan. I would take a certain amount of money and divide it among them and tell them to make the very best show they can possibly do, and put their signs up, over it; thus giving them the best advertisement they can possibly get, causing no ill feeling and no competition, and leaving each one of the visitors to draw their own conclusion.

COMPETITION OR EXHIBITION.

This is what we want to know. Is it best to have the hot, grab-all competition we so often see in our Fairs, or should our shows be made a harmonious whole by some systematic, judicious plan of arrangement and decoration ?

If our Fairs would make every possible arrangement and give every possible convenience for our displays, using some of the money now given for premiums, for assistance in the displays, it would be a better thing for both the "Fairs" and the exhibitors.

Let our displays be exhibitions of horticultural products, rather than competitive shows.

Let the money be given, and given more liberally, for this purpose by the "Fairs," and by our county courts, purely for an exhibition, when it is to be made as a whole ; and only for individual premiums on fruits, vegetables and flowers.

Let all the large displays of all these be made more for exhibition purposes, and not for competition, and let a liberal amount of money be given to those persons or counties who will do this well.

The following is the section giving the county courts authority to appropriate money :

ARTICLE 2, SECTION 4057 REVISED STATUTES.

COUNTY COURT MAY APPROPRIATE MONEY TO SOCIETY, when :

The county court of any county in which there shall be a society organized according to this article, or any special act of incorporation, shall have the power, and may, if it shall be deemed expedient, appropriate out of the county treasury, for the benefit of the society, the sum of (\$150.00) one hundred and fifty dollars in any one year, and the money so appropriated, shall be drawn by the treasurer of the society, in a proper warrant, provided said money shall be annually awarded, by the board of directors, in premiums, or expended by them in the purchase of premiums, to be known as "the (name of county) county court premiums," to be awarded according to the rules, regulations and by-laws of the society; and, provided further, that not more than one such premium shall be awarded to the same animal or article of exhibition by the same county society. (G. S. 322, § 7.)

THE LANGUAGE OF FLOWERS.

BY MISS NELLIE WATKINS, KANSAS CITY, MO.

“Now, nature hangs her mantle green,
On every blooming tree,
And spreads her sheets of daisies white,
Out o'er the grassy lea.”

First in the season are the Primroses and Snow Drops, which speak of hope and purity, and coming thus after the long cold winter, are a fit type of the resurrection. I think it was Mrs. Childs, who says: “How the heart of man blesses flowers; they are rightly wreathed around the cradle, the marriage alter, and the tomb; they should twine around the tomb, for their perpetually renewed beauty is a symbol also, of the resurrection; they should festoon the altar, for their beauty and fragrance ascend in perpetual worship before the Most High.”

Early in the season do we have the beautiful tulips, clad in purple and gold, while in the woods at the same time is the moss-clad violet fragrant and concealed, like hidden charity, also denoting faithfulness, modesty and rural happiness; in the same family comes the Heartsease, and Pansy, for thoughts.

While none are more beautiful than the stately Lily, in its white purity, is so highly indicative of haughty pride, as to take from it much of its sweetness; it has yet to learn humility. No matter how beautiful the exterior, a heart which is careless of all save itself, will never gain the highest reward; best that we learn of the Mignonette, which though sad colored and not beautiful, gives forth a sweet perfume of humility and care for others; not like the Roses, of whom it is said: “truth and roses have thorns about them, even if they are royal and sweet, are filled with the thorny branches of passion, and that makes nothing, be it flower or mortal, fair.” It is wisely said: “rule thyself, that you may wisely govern others.”

We can look to the Daisy for simplicity and unaffected air, as the Hyacinth for constancy, with its bells of purple, white and blue, ringing out on the air, a soft peel of music.

In all this group of flowers do we find the Sensitive plant companionless and alone, breathing forth from some quiet corner, sensibility and delicate feeling, but, as Shelly says, "The sensitive plant was the earliest up-gathered into the bosom of rest, a sweet child, weary of its delight, the feeblest, and yet the favorite, cradled within the embrace of night,"

No one can help being near to Nature, watching thus the unfolding life in all this floral world; even the Persian in the far east, delighted in their perfume, and wrote his love in nose-gays, while the cupid of the ancient Hindoos tipped his arrows with flowers, and orange flowers are a bridal crown with us.

Bonnie May brings us also the yellow Cowslips for pensiveness and winning grace, while in the old fashioned gardens of our grand-fathers will we find Hollyhocks for ambition, with Periwinkles for pleasures of memory; the Lady-slipper for capricious beauty, Larkspurs for levity, while in their train comes Sweet William, denoting gallantry, and the Bachelors Button for celibacy, while the Marigolds round out the group with grief.

Now just a bit of the lonely Wall-flower's history. "It is said, 'twas once a bonnie lass, who a sprightly youth did love, and to have it fully proved up she got upon a wall; but alas she had a fall, where she bruised and died; Jove, in pity of the deed, and her loving, luckless speed, turned her into this plant we call now, the flower of the wall."

In all, if we only look, will we find some token of their nature an example worthy of emulation. "The red rose says be sweet and the lily bids be pure, the hardy brave chrisanthemum be patient and endure. The violet whisper give, nor grudge nor count the cost. The woodbine keeps on blooming in spite of chill and frost; and so each gracious flower has each a several word, which read together maketh up the message of the Lord."

INDUSTRIAL EDUCATION.

BY GERALD HOLSINGER.

Within the last twenty years the cry for "industrial education" has become almost universal throughout the civilized world. This cry has been made to penetrate the innermost hearts of the most conservative educational institutions through the astonishing progress made in the arts, through the application of scientific principles, the development of new industries by the powerful influence exerted by technical science, and the awakening of the agricultural classes to their claim of something higher than their old positions. In all schools and in all places the justice of the demand is admitted, and now the question is, to what extent shall the training of the senses become a part of the education and not whether or not it shall form a part.

There certainly can be no doubt but that you are agreed on the main issue, but let us discuss somewhat the application of the idea of Industrial Education to Agriculture in general, concerning which there is still a great variety of opinion and practice. Such a discussion may prove the more interesting as the establishment of experimental stations has once more brought out the merits and demerits of the Agricultural Colleges. What should be the method of education outside of the home and what can be accomplished by this education is not a common matter to be understood without much reasoning. But there is one thing our farmers and fruit growers do see: that there is something wrong with the old educational system; that it does not teach much that bears directly upon their life pursuit, but rather seems to have a tendency to alienate boys from the farm.

Now the complaint as to these colleges is well founded, in so much as they omit from their teaching the principles that are brought into daily use, and also the training of the senses and perceptive faculties. But the remedy the farmer applies will not bring about the desired effect. He demands that to prevent a diversion of the mind from the farm the boy be shut off from the rest of the world, that he may but dimly see what other people are doing or have done in past years.

This method can not but create in the boy an intense desire for something different. Because the boy desires to go to town it does not go to say he loathes work, because in town he will slave as an ill paid clerk without expectation of ever being able to secure a home, while on a farm he is assured of independence if not opulence.

Then the question should be, How can farm work be made attractive? It is said that it is the birth right of every American boy to be a possible candidate for the presidency. If this is so, how much more right is it for him to choose his vocation. But it is certain you can not convert a young man's mind from one place to another by the "rubbing in" process.

There are some who make a common complaint against the Agricultural Colleges, viz., that by offering a wider field from which to choose than would be used in the study of agriculture, farmer's sons are turned away from this pursuit, that is they insist that the boy be enclosed in an agricultural atmosphere, lest he be drawn to some other vocation. This seems to me to be a singular way to elevate the pursuit of agriculture. It shows one of two things: either it is objectionable for a farmer's son to be anything but a farmer, or farming is too low a pursuit to bear comparison with other walks of life, and consequently he must not have a look at these occupations. Choose either. The one is obnoxious and un-American, the other stultifies the claim that farming is a high pursuit, and that it makes those engaged in this occupation self-reliant and independent.

Farming, when intelligently carried on, will not suffer when comparison is made with other occupations, but it is where farming is made a routine of unprogressive work that it will suffer by the comparison. And it will be seen that it is the progressive farmer who allows his son to be taught his profession in the full light of modern sciences as is now taught in most Agricultural Colleges.

It seems to me there can be no doubt of the fact that the old system of training is much to blame for the numerous instances in which men and women have entirely missed their life vocation, simply because they have not been brought face to face with what they were truly fitted. In every walk of life we see persons who have no right to be there, quack doctors, penny-a-liners, bad poets, worse doctors and kid-glove farmers.

There certainly is an occupation for everybody, and if all are given a good education they are likely to choose the right one, and to succeed. But if a boy, born and raised on a farm, does not take readily to farm work, it is much better for him to engage in some other business in

which he will be a success than a drudge as a farmer or fruit-grower. Parents have no right to predestine a child for any particular position simply because it was the vocation of their ancestors, and possibly his own. But if the boy's views are broadened by training the perceptive faculties, the attraction of the farm, viewed intelligently, will keep the majority of boys just where they are wanted, and the few who are not thus kept had better take up a new line of work than remain in life-long dissatisfaction. Then it is by broadening and not by narrowing the mind that the evils complained of can be remedied ; or I do not believe farm work need be held up by holding boys down to educational manual labor just to keep up the habit. This brings up the principle of the farm schools of Europe. There are places where farming is taught without any principles, but substantial'y rule of thumb. As if this would stop the exodus of boys to the city. But farmers, as a rule, do not want this kind of training for their sons, even at a risk of their not becoming farmers. In different parts of the United States these schools were started. The idea took like fire and as quickly died, for the boy and parent alike revolted against any such machine work as the agricultural college on the farm school idea. These same schools have been compelled to throw out all uninstructed labor and to enlarge their course until now the subjects taught in these colleges differ but a little from those taught in the non-agricultural college.

It is useless to say that the college farm is the great factor in making practical farmers of the students. I think it is generally admitted that they are not, but are intended to serve for illustration and demonstration of principles. A boy on a farm must serve an apprenticeship before becoming a skilled workman. But where it will take years for a raw boy to adapt himself to varying conditions, months only are necessary for one who has had a thorough course of instruction. Give a boy a knowledge of the principles with which he is to work and teach him to use his senses and he will care for the rest.

REMINISCENCES.

BY W. R. LAUGHLIN, OREGON, MO.

Grape-growing had been tried and nearly all men had come to believe it was a failure. William Penn's experiment made two hundred and fifty years ago; another by the Rappites, at New Harmony, Indiana; the French, at Vincennes, and the Swiss at Vevay, all with foreign varieties, seemed to leave but little reason for hope, and the verdict was that "grapes cannot be raised in America."

But here and there was a man, or sometimes a woman, who saw the woods full of wild grapes, and, sensibly, went to work trying what could be done with such varieties as nature had already shown to be suited to this continent.

In a cabin in the woods near the edge of a sandy rolling, Hennepin Prairie, in the County of Putnam, and State of Illinois, lived Smiley Shepherd. Like many men of whom the world is not worthy, he was poor.

Well do I remember, now fifty years ago, to see him and his family regular attendants at the Old Log Meeting House at Union Grove. Their team was a yoke of black oxen. Shepherd's health was not good, and, of course, his more robust neighbors called him *lazy*. He was tall, self-possessed, reserved and thoughtful. He was one of those who were then here and there, working at the grape problem. As he passed among the woods, he marked the wild vines that bore the best grapes, and a few of these he cultivated where they stood, or moved them to his garden.

Soon in the history of that variety he procured a vine of the Isabella. That vine was one of the wonders of my early boyhood. Trained on a horizontal arrangement of poles, perhaps seven feet from the ground, the many clusters that seemed to me so huge, of grapes that looked to me so large, hung below the frame work, and I was permitted to walk under and to see the Glorious Revelation. At Shepherd's suggestion, I held a bunch in my hand, and I and the other red-headed boy who had gone with me, actually *tasted* some of those grapes. If they appeared to us

to be scarcely less than cannon balls — well, please imagine how they tasted.

Years went by, and Smiley Shepherd's vines increased and his grapes became the talk of the country. Sneers changed to inquiries, contempt gave place to a rude appreciation, and a few men began to plant a vine or two for themselves.

Shepherd added other varieties to his list, and more and more the wonder grew. He ate of the grapes he raised, and drank of the wine he made, and became stronger and gained courage. He sold of the products of his vineyard, and became less poor. Men came from afar to see, and returned home to do as he was doing.

In the year 1855 and 1856, at the Illinois State Fair, he took the first premium for "Greatest Variety of Good Native Grapes," and also for the "Best Show of Grapes." The visionary invalid had become famous and far better and more important than that he had done a valuable thing for his fellow-men. He and other workers on the same line had given success in grape-raising a rare present to a nation.

Without our Smiley Shepherd we would not have to-day our Husman, our Munson, nor Bush and Meissner, nor those better varieties of grapes that have already taken the place of the ones that were such successes half a hundred years ago.

THERE ARE TWO SIDES

to the question of the honesty or not of nurserymen. I am not on the fence as to that issue, but on both sides of it. On the side of the honest, capable nurseryman to uphold him, to vindicate him, and so far as I have the ability, and may find the opportunity, to champion his cause. Also on the side of the rascally nurseryman, hoping to assist in his destruction as such; ready to expose him and his frauds, tricks and impositions; ready to denounce him when I have found him; to say to him, "thou art the man," or to the people, "there is the man." If my belt is not ornamented with his scalp, it shall be my fault, failure or neglect.

With the well-meaning incompetent, let us deal not roughly, but firmly. His excision is necessary; his retirement is demanded for the public good; a perverted sentiment of mercy for him might leave him to carry on his career of mistakes and of misjudgments, which would be none the less dangerous to his customers because they were not malicious. Pity for him and proper regard for his own welfare should move us to make sure that he leaves the business and finds his mission in some other calling.

It is now more than twenty years that I have been out of the business, but my acquaintance with nurserymen began when I was not half grown, and has continued to the present time.

I have no ax to grind, no boon to crave, no cowardly fear to restrain me.

At Granville, Putnam county, Illinois, lived a man who was known as father—we will call him Father Grimes, but his name was not Grimes, and luckily for posterity he was not the father of anybody. Father Grimes was a born enthusiast. He had zeal, without brains enough to harbor much knowledge. He was kind of heart, also of judgment, weak and feeble tongued. His perception of colors was not acute, and his taste was not discriminating, his view of farms was shadowy, and his grasp of principles and his memory of facts were faint. He could read, and did read, and I almost think it was a pity he could; but he pored over two or three of the old time fruit books, while he had better been raising corn and potatoes or looking after poultry. He had learned to bud, and did his propagating that way. For miles around he sought out varieties. Such orchards as had at that time begun to bear were mostly seedlings. Returning home with stores of apples collected he drew down his books and campared his specimens with their discriptions of varieties. Of course they must be something, and that something must be found in those books. Some striped seedling of no value, perhaps from a worthless tree became an Autumn strawberry, or a Chenango; a yellow apple of some size, but ever so poor in quality, became a Golden Pippin. An apple somewhere near the right shape and size, found itself a Baldwin, a Vandevere, or a Rhode Island Greening. He hastened to cut his buds to suit his names, and staked them in the rows accordingly. Most of Father Grimes' small nursery was produced in that manner; and to that miserably mixed up mess of stuff did scores of men go to get trees to set for family orchards. I have no doubt but, when Father Grimes knocked at the gate away above, Peter met him and appointed him a seat not high but comfortable. Let us hope that his good intentions formed the ground for judgmgt in his case; but we must regret that many families after waiting eight or ten years, found their apples very different from what they had expected.

ABOUT THIRTY MILES

from our place lived another specimen of the frontier nurseryman, another development of the times of forty years ago. A rushing farmer, large of frame, strong of muscle, sharp and unscrupulous, plausible in his manner, of persuasive speech, and of sufficient means.

He saw nurserymen doing well and planned a big operation for himself. It was easy to get the necessary seed, to plant them in the new clean prairie soil, and to graft the roots with what he pleased. He did graft them with three or four of the varieties that he knew made the largest and finest looking nursery trees. His stakes were numerous and the inscriptions thereon sufficiently various to cover a large list of varieties, and were chosen to satisfy even those who knew what apples they wanted, but of course knew nothing from appearances of the young tree as to what they were getting. I saw his nursery at its best, and I have never seen finer looking trees. Diligent advertising brought him very many customers, and the trees showed so finely, and did so well, that they came again the next year and many others came with them. For a few years he had a heavy business, in fact became rich. In due time men's orchards began to bear, and they found their apples mostly Big Romanites. But, —— had calculated on that and by that time was out of the business.

Children were cheated out of the fine apples their parents had told them to expect, and began early to lose faith in the human race. Patient, toiling women who had waited through long years, were defrauded, and strong men cursed the wretch who had done them a far greater wrong than to merely steal their money. After all this I stopped once at ——'s place. On that pleasant evening he was sitting with his wife and two or three of their smaller children on the porch of his large, well-furnished house, all looking a picture of health and contentment. A few rods away stood his great barn, and all around, his pastures were full of his horses and cattle, while his busy plows were held by other hands than his own. As I rode on I asked, "Where is justice?" and then occurred to me the words addressed to Tam O'Shanter:

"Ah Tam, ah Tam, thou'l get thy fairin,
In sheol they'll roast thee like a herrin'."

ONE MORE INSTANCE,

and a still greater one, of a fraud that had for years such success as what we speak of as a successful fraud may have.

Not at all because that was his name, but because the word has a classical, Greeky sound, I will call him Squeenicks. He was not a literary character at all, but he filled the papers with fine-sounding advertisements written for him by a brainy son of misfortune who worked in his nursery for wages, and wrote for him at rates that were at least cheap.

As early in the spring of 1858 as trees might be sent by the rivers, a relative of mine who lived three miles from the place where we had located our nursery in Iowa, received five hundred apple trees from Squeenicks. He met them at Forest City, and when he had hauled them sixty miles over the wild prairie to his new home asked me to come over and see the boxes unpacked. My relative had ordered, and had paid for first-class trees; but when they were spread out on the native sod of Iowa—oh, what a sight. My relative was himself an excellent judge of trees, and we saw before us a lot of culls, refuse, and unsalable trash. Very few of them had even the outside appearance of good trees; and three-fourths of them were fit for nothing but the brush pile and the fire. But they had been paid for and received—the swindler was hundreds of miles away and there was practically no redress.

Two or three years after, another man was about to send to the same villain for a large bill. I told him of the above case and urged him not to send to that man; but he did send a large order for pear trees and some other things, and far worse than threw his money away. Still not satisfied, a cemetery association, and individuals joined in sending to the same sink hole several hundred dollars for trees, evergreens and shrubbery. Most of the stuff received for that money was worthless, but Page county had enough of Squeenicks.

That man's history is briefly told. The samples of his style that I have given here are enough; and it is only necessary to add that he retreated from his victims and from his business, and now but poorly fills a contemptible obscurity.

I have instanced these three exceptions to prove the rule. Over against these three I place a long array of names, too numerous to be given. Names of men who love their calling for its own sake and who followed it because they loved it; men who perseveringly sought out its facts and patiently worked out its details; who would rather give to the world a valuable variety of apples than to conquer and rob a province; who could see beauty, smell fragrance, taste flavor, understand values, calculate the finer effects and appreciate all these, and to whom such work for their families, their neighbors and their kind was high pleasure. The confidence of such men in each other is instinctive; it is spontaneous; it can be felt in the air. It was a strong expression of "The poet of nature" when he wrote "With such as these may I be

SAVED OR DAMNED."

Do we judge the professions solely, or even in great part, by the miserable exceptions? To many people the very name of "Lawyer" is a synonym for everything of trickery, and yet every man who has obtained, by contact with them, any correct idea of lawyers know that there are many of them who live and act in an upper atmosphere where is no taint of deceit nor any stain of dishonor.

Do we fail to trust the physicians we have known for years because of the disgraceful crew of noisy quacks, and of shameless empirics who buy their diplomas and fill our papers with their conscienceless advertisements?

As a body the clergy of all denominations has very largely the confidence of the American people, for all the fact that among them may once in a while be found a hypocrite or a villain.

We may safely challenge any just comparison between the established nurserymen and seedsmen of the United States and the members of any of the professions. I do not include the floating frauds who are here to-day and yonder to-morrow. They are pirates, they are beasts of prey, they are reptiles. Nor the man, rich though he may be, who sending out from one place piles fraud upon fraud year after year, ignoring exposures, always seeking new victims, peddling his wares by means of every new invented cheater. If he has any parallel among our social existences it is the painted harlot. The State Horticulture Society of Minnesota did well when, at its meeting of January, 1887, it thoroughly overhauled May & Co.; and the State Society of Ohio, when D. M. Ferry & Co. were effectually discussed.

It is wonder and pity that more persons do not learn how to bud and to graft, to layer and to plant and to handle cuttings and bulbs; but the fact remain that very few of the people will do much of their own propagating; so the nurseryman must handle all these for the public; and the time has passed when we can afford to save our own garden seeds. Seedsmen of long experience and of established reputation can produce better seeds than we can, and are sending them to us cheap enough. Nurserymen and seedsmen, we need them both. If one or the other cheats us once it is his fault—if he cheats us the second time it is our own fault; and if he ever gets the chance to cheat us again we deserve to be cheated.

From the greatest to the least, first, last and all the time, in all this business, there must be no rascality and but few mistakes. Men must

tell the truth and be very careful as to their judgment; for if once they begin to trifle with conscience and judgment, both will soon be gone and finally their business will have gone too.

The tribunal of public opinion is the highest court in the land. Its processes are not executed by sheriffs or by marshals; its edicts are not recorded in a clerk's book; its verdicts are informal, but its judgments are self-executing. No nurseryman's appeal to that court is a safe one unless it is just. Then, and not otherwise, may he appeal to truth and to time.

WHICH IS OUR BEST GRAPE?

BY L. GEIGER, BOONVILLE, MO.

After having examined the leading price lists of the grape nurseries in Missouri and from abroad, and considered their merits and the practicability of planting at large on our Missouri hills, I am at a loss to tell you "which is the best."

Every kind and every variety has its merits and demerits. Missouri is a large, a great state, and within its boundaries lays a great wealth of undeveloped riches. It is traversed by one of the greatest rivers on this Continent, and running eastwardly to the waters of the mighty Mississippi, and situated midway between the Atlantic ocean on the east, and the great Pacific on the west, between the great lakes on the north, and the balmy waters of the Gulf on the south, it is destined through its central location to become the metropolitan state of the Union. Only sixty-eight years a state and a member of the proud union of the States, it has shown to the world its capability of producing the best apple and white wine on this Continent, and the best red wine on the globe. At the Centennial Exhibition at Philadelphia, the Missouri white wines were all taken by the Chinese Ambassador for the royal tables of his Emperor and the nobility of that ancient country, be-

cause they were the best of all the white wines exhibited at the first World's Fair in this country. At the Vienna Exhibition, that great world's fair in that historical city on the Danube, the product of Missouri vineyards, was awarded the first prize as the best red wine, in competition with all the wines raised in the wine-renowned districts of the world. Is this not worth praise enough to make any Missourian proud of his State? And should not this stimulate every vineyardist to greater exertion? Every man has his ups and downs his trials and tribulations in this world, and the vineyardist not excepted. Fifty years' trials in the Missouri vineyards bear testimony to that effect. The viticulturist had to fight against many adversities; he has to be in constant war with birds, insects and disease, and, in spite of so many obstacles, ingenuity, incessant industry and perseverance, have helped him to win a glorious battle.

By meditation, observation and experiments, he has learned during these past years of failure and disease in his vineyards, that great lesson, that want of fertilization is the main cause of disease. If we take a crop of fruit from our vines year after year, without restoring the proper nutriment, as a matter of course, failure, and finally disease must set in, and the indolent and lazy vineyardist is at a loss.

Many years ago, a man, connected with a large vineyard, was asked the question, "how is that vineyard doing?" "Oh, he said, it appears to be all right, I believe, though it ought to be manured." And for more than twenty-five or thirty years there have been crops of fruit taken from that vineyard without the least effort to make any use of fertilizers. And the large casks in those spacious wine-cellars, which were filled with the crop of the year 1874, have never since experienced any such amount of wines. Disease has set in, some say Phylloxera; and, in my opinion, it is worse than that—it is nothing else but starvation.

As it is said, "ingenuity helps many a man to overthrow obstacles," so in the production of wine. The production of pure wine could not meet the demand, consequently the unscrupulous vintner resorted to adulteration and overflooded the country with that stuff, damaging the interest of viticulture and the sale of a pure article of wine. Besides all that, viticulture was damaged by the laws of the land, which prohibit the sale of wine in the hands of the producers. It was reported that the vineyards were more or less in a state of neglect or carelessness, and how could they be otherwise? The natural result of such a state of affairs could not bestow any courage to the vineyardist, hence the neglect. It is no wonder, when the sturdy, industrious worker in the vineyard turns a cold shoulder to his grapes and seeks another and more remu-

ncreative field of occupation. "Well," I hear it said, "you had better raise a market grape and bring your fruit to market in succession." Yes, sir, suppose every grape grower of any amount of acres set in grape vines (and if he wants to make the production of grapes his business, he must have that) would send his fruit to market, they would overstock the market or markets so much the fruit would not bring the cost of transportation, besides not all the bunches are marketable. Now, what shall we do with them? And where disease has set in, in the vineyards, and spoiled the bunches so they are unfit for market, what then? Make them into wine is the only alternative.

Against mildew on the leaf, and rot on the berry, we have applied some remedies—but to what extent? We have lost our crop, scientific observations proved that rot is not caused by stings of insects, but by the spores of an injurious fungus, against which there seems to be no other remedy, but protection from the contamination of the floating spores in the air. We bagged our grapes and the result was good, some bunches in paper bags would not ripen, and the canes have not made a healthy and vigorous growth. We thought there must be something else to be looked after and we found starvation, want of proper nourishment was the cause of that; we then commenced to feed the roots and rootlets with the proper fertilizers, such as barn-yard manure, lime, wood ashes, bone dust, sulphate of iron and copper, scrapings of our town streets, etc. We have sprinkled over the tilled surface of the land the liquid of manure from the slaughter houses, and the result was, that at our exhibitions and fairs those grapes raised in the open air without any protection whatever on such fertilized vineyards, were awarded first premiums in competition with those pets, raised under protection or in bags. In the discussion on grapes at the meeting of the Missouri State Horticultural society, at West Plains, Howell county, a member made the remark that a vineyard bears well until about five years old, then they begin to rot. And why? Because the fertilizing elements proper to a healthy production of the grapes are exhausted, and consequently starvation and disease. The same gentleman made a second remark that strawberries planted between the rows are a preventive of rot. My experience has proven that where strawberries were grown in the vineyard grapes rotted the most. As a matter of course, they helped impoverish the land, and my vineyard is proof of that. A neighboring vineyard changed owners about a year or so ago. Under the former owner, the grapes rotted, from year to year, so that the product of grapes did not pay the taxes of that land. The present owner commenced to manure and cultivate thoroughly, and at the fruit exhibi-

bition, last fall, the grapes produced on that fertilized and well cultivated land, without any protection, but raised in the open air, in competition with a great number of the same variety, were the most perfect bunches and received first premiums, and the grapes were Labruscas. It is said, the higher grape vines are located, or raised on trees, they were not effected by rot. Now, on a high bluff, whose feet are washed by the turbulent waters of the Missouri river is a vineyard located, and set in promiscuous varieties of grapes. The crop on that vineyard was, for many years, a good one. In later years, they failed, and rotted badly; a few rods east of it, is about an acre set in Norton and Cynthiana, which have produced full crops every year, cultivation or no cultivation, and a few rods east of that, on the steep, sloping hillside, facing towards the east in an open, wide ravine and the Missouri river, where barely soil enough could be found by terraceing to plant the grapevines—there never, by no cultivation whatever, was any complaint heard of either mildew or rot, and the grapes were Concord. In spite of the spores of that injurious fungus floating in all directions, a full crop of fruit of healthy and perfect bunches was raised every year, and the land was a limestone ledge. We find the same in the animal body, and the human constitution. The weak and poor ones are the easiest effected by a prevailing epidemic, while the well nourished, healthy and robust constitutions withstand the attacks the best.

Botanists have classified the American grapevines. Catiwba and Concord are marked Labrusca, Norton and Cynthiana belong in the class, Aestivalis, Goethe is a Hybrid and Elvira is a Riparia. They are easily distinguished by any viticulturist. Now, the Labruscas have a tendency to spread their roots near the surface of the ground, are greedy feeders, and are, by reason aforesaid, subject to be irritated by the least change of our variable weather. The warm days in early spring cause the sap to rise and the buds to swell before the normal time, and are, therefore, injured by the late frost and by the ravages of the steel blue beetle, which feeds on the swelling bud, and has destroyed the prospect for a fruit crop before we are aware of it.

Varieties which are not hardy enough (and I believe every variety, even the hardest) to withstand the severity of our winters, should be pruned in fall and laid down on the ground and covered with coarse litter, which is to be held down by throwing a few shovels full of ground on it, and should not be raised before the latter part of April or early May.

Norton and Cynthiana send their roots deep in the ground, are later in appearance in the spring, and consequently healthier and not so much

subjected to the ravages of our insect foe. After knowing how to raise the best grape, we may then be able to answer the question, "Which is our best grape."

Once I heard a hotel lady making the remark to her husband—the hotel keeper: "now you always object to buying this or that vegetable, we must have it, our boarders want it, they like it, and if we want to keep on in business, we must furnish them with what suits their taste and not yours." And right here runs through my memory what the old Romans used to say: "*De gustibus non est disputandum.*"

The best grape for market may not be a good grape either for table or wine and vice-versa.

If we want a market grape, we have to study the wants of that market where we want to sell, and accordingly raise the grape to suit it. A solid perfect bunch of either black, red or white grapes will attract the eye, and sells in any market either at home or abroad. It is said the Kansas City market prefers the white grape, and those supplying that market will find a very good variety in the Empire State, Martha, Niagara and Triumph, or Brighton, Catawba and Goethe in red, and Concord in dark colors, these are old, tried, standard grapes, either for market or table. But the question is, which is our best grape?"

Since the introduction of the Norton into the Missouri vineyards (to my recollection about thirty years), when Mr. George Husman, then of Hermann, Missouri, read his celebrated essay on grapes before the Missouri State Horticultural Society, then in its infancy, meeting at the city of St. Louis, and urged zealously the planting it at large as the best grape for red wine. And every word spoken in its praise at that time was not said in vain. The Norton has proved during those many years the best of its kind, and should be planted in every garden, on every farm, on every spot of land where a family resides. And a bottle of Norton Virginia Seedling wine should find its place beside the family medicines in every household of the land. Now, if the Norton is the best grape for red wine, which is the best for white wine, for market and table? A grape which combines these three cardinal qualities, is a standard variety in our vineyards, though most of us don't know that. It produces a large, showy bunch of a rich, desirable, reddish or copper color, ripens about mid-season, catches the eye by the first glance in market, is a good shipper and a very good table grape; it brings a high price in market either abroad or at home, and, if made into wine, makes a white wine, which is not yet excelled by any produced in this country, California not excepted. And this grape is the Catawba, "our best grape."

WHAT OTHERS SAY.

INSECTS.

SOME FRIENDS OF THE FARMER.

In concluding a recent bulletin from the New Jersey Agricultural Experiment Station, Rev. George D. Hulst, entomologist, says: "It may also be an advantage to point out some of the friends of the farmer, which, consequently, no farmer should destroy or allow to be destroyed. Among these are the toads, which are, under all circumstances, the farmer's friend; moles and field mice probably do a vast deal more good than harm, all birds, especially robins, wrens, thrushes, orioles, cuckoos, phœbes, bluebirds, woodpeckers, swallows and catbirds. The destruction of all these and many others, except for scientific purposes, should be made under very heavy penalties, illegal in every state. The house-sparrow, known better as the English sparrow, is to be rated an exception. This bird is now universally regarded as a nuisance—first because of its grain and vegetable destroying propensities; secondly, it drives away insect-destroying birds."—*Prairie Farmer*.

A NEW REMEDY

against the woolly aphis louse is just given by D. Cramoisy, in the *Revue Horticole* for July, 1888. It consists of pyrolignous acid, rectified to seven or eight degrees, one thousand grams; salicylic acid, two

grams; red oxide of mercury, one gram; fuchsine, one quarter of a gram. This solution is diluted with thirty parts of water, when the vegetation is active, but is used pure in the winter. A month or two after the application of this caustic, the old bark of the tree on which the eggs occur falls in powder, and the bark becomes smooth, shiny and of a beautiful healthy color.

SPIDERS AND PLANT INSECTS.

Repulsive as spiders are to most persons they perform, according to Dr. Keller, of Zurich, an important part in the preservation of forests, by defending the trees against the depredations of aphides and insects. He has examined a great many spiders, both in their viscera and by feeding them in captivity, and has found them to be voracious destroyers of these pests; and he believes that the spiders in a particular forest do more effective work of this kind than all the insect-eating birds that inhabit it. He has verified his views by observations on coniferous trees, a few broad-leaved trees and apple trees.

The evidence that spraying with London purple is a preventive of curculio injury grows stronger and stronger. Besides the Ohio Experiment Station results, already noted in the *Garden*, Forbes, of Illinois, and Cook, of Michigan, have both reached the same conclusion from independent experiments. The farmer finds that the curculio feeds upon the leaves of the plum before the fruit forms, and consequently may readily be reached by early poisoning.

But care must be taken that the London purple solution is not too strong. Plums seem to be more susceptible to scorching than apples. One pound of poison to 100 gallons of water is all sufficient, and half this strength will probably do equally satisfactory work at less risk of injury to foliage.

THE APPLE CURCULIO.

Twenty-five years ago Mr. Walsh wrote that he had always found these beetles on the crab and hawthorn, and predicted that they might sooner or later make injurious attacks upon the apple. That prediction has been amply verified in this and other states. It is about one-fourth of an inch long, of a dull, brown or gray color, with four rust-red humps, two on each wing cover. It is smaller than the plum curculio, and has a longer and more slender beak. It punctures the apple, both for the

purpose of feeding and preparing a place of deposit for its egg. The punctures, unlike those of the plum curculio, are small, round and rimmed with black. It is single brooded, and undergoes its transformations within the apple, where the small wrinkled and humped larva works around the core, after a time changing to a translucent white pupa. In a short time the adult beetle emerges and cuts its way out of the fruit.

It can be kept in check by jarring the beetles from the tree, in summer, upon a sheet and burning them, and by gathering and destroying the infested fruit.

PLUM CURCULIO.

In Bulletin No. 4, of the Ohio Agricultural Experiment Station, Clarence M. Weed, entomologist, reports some elaborate experiments in preventing curculio injury to cherries. We have only space for the following summary and conclusions:

1st. These experiments were undertaken to learn what effect the application of London purple and lime to cherries soon after the fruit forms, would have in preventing the injuries of the plum curculio, or, in other words, in lessening the number of wormy cherries.

2nd. For the carrying on of the experiment a half-acre orchard of bearing trees was set aside, and a part of it treated, while the rest was left as a check.

3d. London purple was applied in a water spray, mixed in the proportion of one-half pound to fifty gallons water.

4th. Lime was applied in a water spray, mixed in the proportion of four quarts to fifty gallons, until the leaves were whitened.

5th. The cherries were critically examined when nearly ripe, and the exact number of specimens injured by the curculio recorded. In this way 22,500 cherries were individually cut open and recorded.

6th. From eight trees, sprayed thrice with London purple, 8,000 cherries were examined, of which 280, or three-fifths per cent. were wormy, while from seven companion trees not treated 7,500 were examined, of which 1,086 or 14.5 per cent were wormy. This represents a saving of 11-14 or 75.8 per cent of the fruit liable to injury.

7th. From two trees, sprayed four times with London purple, 2,000 cherries were examined, of which sixty-nine or 3.45 per cent were wormy.

8th. Two quarts of cherries from each of these lots were chemically examined at the time of ripening, by Prof. H. A. Weber, and showed no trace of arsenic in any form.

9th. Five trees, sprayed four times with lime, yielded 465 wormy cherries out of 5000 examined, while five check trees yielded 778 wormy cherries, from 5000 examined. The percentage of the former was 9.3, while that of the latter was 15.6, which gives a percentage of benefit from the treatment of 40.3.

CONCLUSIONS.

These experiments seem to show so far as the results of a single season's work with a single variety of cherry can be relied upon:

1st. That three-fourths of the cherries liable to injury by the plum curculio can be saved by two or three applications of London purple in a water spray (in the proportion one ounce to five gallons of water) made soon after the blossoms fall.

2nd. That if an interval of a month occurs between the last application and the ripening of the fruit, no danger to health need be apprehended from its use. As a precautionary measure, however, I would advise in all cases, and especially when there are few rains during this interval, that the fruit be thoroughly washed before it is used.

3d. That lime is not so certain in its preventive effect as London purple, saving in these experiments only forty per cent. of the fruit liable to injury.

FOR INSECT ENEMIES.

Very seasonable is this brief but comprehensive enumeration of remedies for injurious insects, and the like: Tobacco smoke kills the green fly; water, the red spider; jarring the curculio; Paris-green and water, the codling moth; water, soap and carbolic acid, the bark louse; white hellebore, the currant and gooseberry worm; spraying with Paris-green and water, the canker worm; wire cloth tied around the base of the tree prevents borers; tobacco water kills plant lice; slug shot will keep off the turnip fly, cabbage worm and other garden pests; the strawberry leaf rollers must be picked off, or a new planting made; the tent caterpillar, by cutting off the leaves and branches and burning; cutting off all the infected limbs for blight, and knot; sulphur is good for mildew.—*Prairie Farmer.*

FIGHTING APPLE-BORERS.

We again urge upon our readers the desirability of fighting apple-borers especially on young trees, and present below the recommenda-

tions of Professor S. A. Forbes, as to the two principal methods of doing this:

1. PREVENTING THE LAYING OF EGGS.—This is best accomplished by washing the trunk and larger branches of the tree two or three times in summer with a strong solution of soft soap to which has been added a little crude carbolic acid. The soil should be evenly smoothed down about the base of the tree so that the mixture may reach the lower portion of the trunk where the round-headed borer is so apt to lay its eggs. Washing soda added to the soft soap until the whole is of the consistency of thick paint is also thought to make an excellent wash for repelling the beetles. In Central and Southern Illinois the first application should be made about the middle of May, and succeeding applications at intervals of about three weeks.

2. DESTROYING EGGS AND LARVÆ.—This should be done in August, September and October. By a careful examination of the trees during this time the eggs and young larvae may be detected, and by the judicious use of a knife they may easily be killed. If the ground is smoothed off about the young trees early in the season, the insects in the lower part of the trunk are more readily reached; or an excellent way is to compel the beetles to lay their eggs where they can be easily reached, by mounding the bases of the trees, either with sand, which is best as it does not crack open and allow the beetle to deposit below the surface, or with ordinary soil. According to Hon. J. W. Robison, for many years a successful orchardist in Central Illinois, one man can usually examine and kill all borers in five hundred or more trees per day.—*Prairie Farmer.*

ORNAMENTALS.

WHAT IS SAID OF THEM IN MYTHOLOGICAL STORY.

THE TREE OF LIFE—THE NORSE WORLD TREE—THE FAMOUS SOMA
TREE—INDIAN LEGENDS—A CLASSICAL TALE—
GROVES OF THE GODS—DRUIDS.

The tree figures in the earliest cosmogonies. In the Garden of Eden stood the tree of life, whose fruit would have bestowed perpetual youth upon the first pair, and near it was the tree of knowledge, fatal to them and to the destiny of man. According to a mediæval legend, the former was transplanted to Abraham's garden, a thousand years after the fall of man, and an angel came down to tell him that upon it the Redeemer would be sacrificed after having descended from it. A Scotch tradition assigns to the apple tree the honor of being the tree of knowledge.

In Norse cosmogony, the tree plays a still more important part. It is here the world tree—Yggdrasil—whose foliage is the clouds, the stars its fruit and the sea its bed. At its foot bubbles the fountain of life, and from its branches fire was brought to man. Under it sit the three Nornes who weave the events of man's life. Its roots extend into the highest heaven and into the deepest hell. This tree was an ash, and another legend says Odin created Adam from the ash and Eve from the elm.

Like this is the famous Soma tree, which stands on an island in the middle of a lake, guarded by fish. From it is distilled the soma or amita, the drink of immortality. Near it stands another tree, called the inviolate, bearing the seeds of all plants and flowers. In its branches are perched the eagles. When one rises a thousand branches break off, scattering the seed over the earth.

Like the Norse world tree the intelligent oak of Dodona had its roots in deepest hell, and a fountain at its foot gave forth the oracular sayings of Jupiter. This evergreen oak spoke its thoughts, even when cut down, for of it was the intelligent prow of the Argos made.

The "tree of life" was not merely a figure of speech in ancient belief. Many Greek and Persian families claim descent from trees. Cadmus sprang from a tree, the Achamenidæ claimed a similiar descent, and even Mars, according to one legend, was the offspring of a tree. Pliny says there stood before the temple of Quirinus, at Rome, two myrtle trees—one the patrician, the other the plebeian—and that, as these orders of society grew or diminished in importance, its tree flourished or pined.

Among savage tribes the tree is often a god. The Ojibways thought certain trees were deities, and made offerings to them. The Dacotahs worshipped many trees, especially medicine wood. Carolina Indians venerated the Youpon, or wild fig tree; the Mayas recognized a divinity in trees; the Tepanecs worshipped them, and Darwin saw a tribe which venerated a tree, the home of a deity called Wallechu. They poured libations through a hole bored in it, and around it were the bones of horses that had been sacrificed. Indian tribes generally worshipped trees, and some thought that they sprang from them. Darien tribes descended from trees, and some of the Aztecs claimed their origin from two trees in a wooded gorge.

As the tree was the origin of life, it was also thought the home of souls after life was ended. Empedocles says souls of the highest virtue passed into trees. The old classical tale of Philemon and Baucis assigned them a final home in trees as a reward for charity shown to Zeus. Another tradition says the penitent Myrrha became a tree, and the drops which fall from the bark (myrrh) are her tears. Dante traversed a leafless wood, in the bark of every tree of which was imprisoned a suicide, and he spoke to Pietrodelle Vigne. The Greek Dryads were fabled to have their abodes in trees. Ojibway Indians thought trees possessed souls, and never cut them, some fearing to pain them. In many places in Germany trees are thought to be the first abodes of infants.

The tree of knowledge occurs in popular lore. In north Germany, when the master dies, some one must go into the garden and stand under a tree and say: "Master is dead," for, if the tree is not informed, there will be another death. An Ojibway tale represents a tree as whispering a tale of love to a certain maiden who dedicates herself to it, dies, and is often seen wandering in the forest. According to a Maori myth, heaven and earth were once joined in an embrace so close that their children had no place to dwell. But Tanemahuta, father of trees, pushed them asunder with his branches. These ideas concerning the divinity of trees led to their worship in primitive times.

In the deepest groves abide the gods. Primitive nations inhabited the forest, and the tree was their first shelter. The center of the early Greek as well as of the Teutonic dwelling was a tree, around which spread the house. Groves were the first temples, and the Gothic church is but a grove turned into stone. In old German dialects, temple and grove are the same word. Tree worship was the foundation of Germanic and Celtic religion. Down to the introduction of Christianity in the north, the deities were worshipped in sacred groves, and on the boughs of the trees hung the heads of sacrificed animals. As late as the eleventh century trees were worshipped in many places. The Druids as is well known, worshipped and sacrificed in groves, and the oak was a sacred tree to them.—*F. F. Bassett in Globe-Democrat.*

Dispense with walks and drives, except when they are required for the daily comfort of your family. Eschew rustic ornaments, unless of the most substantial and unshowy character *and in shadowy locations*. Avoid spotting your lawn with garish carpentry, or plaster or marble images of any kind, or those caricatures on nature and art, called rock-work, and, finally, by the exquisite keeping of what you have, endeavor to create an atmosphere of refinement about your place.—*Frank J. Scott.*

FLOWER LAWN.

Now, turn to the flower lawn. Every land owner should have one; not a few beds stuck about in the grass for his wife and daughters to get misery out of, with a few flowers as part compensation. Find the neatest plot, the prettiest for shrubs and the nicest for seats and walks. Place a driveway around it, or hedge it in with evergreens, and devote it to shrubs and flowers. Cut beds and make them large, and do not begrudge manure of the best. Five or six beds will be enough to begin with, add more when needed. Send for roses, gladiolus, geraniums, and plants

easily cared for. In a warm nook, facing southeast, have a good cold-frame or hot bed built, and then help your "folks" to keep the whole in prime order. A few rustic chairs and hammocks, and you can begin to have a home. Eating and raising things to eat and constitute the life of too many farmers.—*Popular Gardening*.

FLOWERS.

KEEPING FLOWERS FRESH.

When cut flowers begin to wilt, they may often be revived by cutting off about an inch of the stems and placing the freshly cut end in hot water. The colored flowers will generally revive almost instantly, and look quite natural, but the white ones will turn yellow. The larger and more succulent will yield to this treatment most readily. Placing powdered charcoal in the bottom of a vase, then adding water before inserting the flowers, will keep them much better and absorb all the injurious or objectionable gases. They may be kept fresh much longer by covering with a glass or something to prevent evaporation from their leaves and petals. Hot air hastens their death by taking away their moisture.

PACKING CUT FLOWERS.

The packing of the choicest and most delicate kinds of cut flowers by amateurs and gardeners not used to that branch, is a question of importance, as, in many instances, they arrive at their destination almost useless, often causing serious inconveniences and disappointment to the receiver. All who grow for market, understand the easiest and best

methods of packing. As we have had some little experience of market system, we will give our readers a brief outline how it is carried out. In the first place, many of the florists' flowers are done up in bunches of 12 sprays in a bunch; the scarlet, white, and pink Geraniums should have the centre of each bloom, gone over with a gum brush can, or it can be done with small stick; the double varieties do not need it. In making up the bunches, cut the stems a good length, tie the ends tightly with matting, and just above the tie, put in a good piece of cotton wool to keep the trusses well apart; the same rule applies to Azaea, Bouvardia, Pelargonium, &c. A box about six inches deep is the best; the light-made French boxes are principally used by West-end florists. In packing bunches, lay them on a sheet of wadding, with a piece between each bunch, packing them close, without crushing. Should there not be enough to fill the box, the space left must be filled up with some loose paper or wadding, so as to make the whole firm; another layer of tissue paper and wool if necessary, so that the cover does not press too tightly. They will thus travel without the least injury. Other larger and choice blooms, such as Orchids, Eucharis, Camellias, Lilies, and large specimens of Chrysanthemums, should be packed in layers on cotton wool, in shallow boxes, only putting one row, as closely as possible. In the case of Camellias, they might overlap a little, with a piece of wool between each; if sending a quantity, about six small boxes can be tied together, as they then go as one parcel for rail. Other hardy kinds of flowers, such as Asters, Chrysanthemums, of the small kinds, Sweet Peas, Marguerites, Sunflowers, Sultans, Zinnias, &c., can be packed in baskets or boxes, in about three layers. All out-door flowers should be gathered when dry, if possible; it is a good plan to damp or dip the stems in water before packing.

CHRYSANTHEMUMS.

There are so many varieties now that the trouble is not to get good ones, but to pick out the "best" of these good ones. Those mentioned below are all distinct early varieties and will be found well worth growing: Elaine, pure white; Venus, light lilac; Golden Beverly, bright yellow; Timbal d' Argent, white, anemone flowered; Juvena, dark maroon; Mad. Andiguier, clear pink, very fine; Roseum, bright rose; Souce d' Or, deep yellow; Lakme, light bronze; Golden Dragon, Japanese yellow; Snowstorm, pale lemon changing to pure white; Red Dragon, dark red; Nymphaea, pure white, sweet scented. Those who wish a larger number of varieties can easily obtain them at any good floral establishment.

JUDGING DESIGNS.

In selecting a judge of floral designs it is not always safe to infer that because a gentleman is a good judge of plants he will do equally well with designs. He may know that the plant is true to name and color and free from disease, well grown, etc., but he has lived such a wholly practical life, giving all of his time to the growing of plants, that he has not cultivated his taste for the beautiful, or devoted much thought to the artistic side of our business. This is by no means always the case, as there are a great many growers that could teach the dealer how to arrange flowers.

In any case it is important to select gentlemen of refined taste and those that can decide between the work of a carpenter and an artist. To avoid these mistakes let us decide upon the best points to be considered ; for instance, the harmonious arrangement of colors ; the graceful arrangement of flowers ; the quality of flowers ; the general effect of the design, and, possibly, the practicability of the same ; that is, how far would it be useful in our business. This point, I think, would generally be entitled to ten, but when we find a florist who attempts to perpetrate a monstrosity on a confiding public and expect them to look upon it as a work of art, the judges instead of allowing him ten points, which should be the standard for all, they would allow say two or possibly zero. If the judges see anything in the arrangement of color that they think could be improved upon, allow eight, six or whatever they may think just. Often the general effect will be good, but on critical examination the quality is hardly up to the mark and vice versa ; mark the different points accordingly. In this way not only the florist will have something to work for, but the judges will have the same advantages in deciding on the merits of the designs.—*American Florist.*

FLOWERS.

SIGNS OF THE SEASON.

I broke a spray of willow by the brook,
When out a jet of sprightly talk it shook:
“Ho! ho! I’ll kiss with blossoms silver-sleek
That sun-and-wind-browned cheek!”

I found an oakling and plucked off his cap,
When up he sprang from his old nurse’s lap:
“Good-morrow and good-morrow, friend, to you;
I’m for the sky—adieu!”

I peered into so many smiling eyes,
They met my own with glances blithe and wise;
“You need not look o’erhead—we violets show
A little heaven below!”

I stood beside a shallow meadow pool,
I watched the fairy shrimps—a twinkling school:
“We children of the sun and moistened clod
Come at spring’s beck and nod!”

I started wide awake, and looked about;
I heard a flicker from his watch-tower shot—
And “quick-quick, quick-quick, quick-quick,
quick-quick—*quick!*”
His rousing notes fell thick!”

I saw a musk-rat high floods could not drown,
Now smoothly swimming through the water brown:
“I’ll build me summer galleries cool and dank
Beneath the grassy bank!”

I turned the turf, when out an earthworm rolled,
Uplifting some loose grains of mellowing mold:
“I must make haste to stir and break the soil,
To help good farmers’ toil!”

I saw a spider stretch her gossamer ropes;
She told me of her secret plans and hopes:
“I catch the midge, and tangle in my claws
Sunbeams and rainbow hues!”

I heard a honey-bee that, hovering low
Above the grass, sang songs of long ago:
“New year, new flowers, new sweets, new joys—and yet
The old I’ll not forget.”—*Wide Awake.*

“COME, LET US PLANT THE APPLE TREE.”

BRYANT.

What plant we in this apple-tree ?
Buds, which the breath of summer days
Shall lengthen into leafy sprays ;
Boughs where the thrush, with crimson breast,
Shall haunt, and sing, and hide her nest ;
We plant upon the sunny lea
A shadow for the noon-tide hours,
A shelter from the summer shower,
When we plant the apple-tree.

What plant we in this apple-tree ?
Sweets for a hundred flowery springs
To load the May wind’s restless wings,
When from the orchard row he pours
Its fragrance through our open doors ;
A world of blossoms for the bee,
Flowers for the sick girl’s silent room,
For the glad infant sprigs of bloom,
We plant with the apple-tree.

What plant we in this apple-tree ?
Fruits that shall swell in sunny June
And reddens in the August noon,
And drop when gentle air comes by
That fan the blue September sky.

While children come with shouts of glee,
And seek them where the fragrant grass
Betrays their bed to those who pass
At the foot of the apple-tree.

Each year shall give this apple-tree
A broader flush of roseate bloom,
A deeper maze of verdurous gloom
And loosen when the frost-clouds lower,
The crisp brown leaves in thicker shower ;

The years shall come, and pass, but we
Shall hear no longer where we lie
The summer's song, the autumn's sigh,
In the boughs of the apple-tree.

A CURBSTONE SCENE.

In the shade of a tree, by the street of the city,
Lay a tired little boy, with the turf for his bed,
In rags, but no beggar appealing to pity,
A child of the lowly who toiled for his bread.
Beside him a handcart stood loaded with fuel,
Bits of board he had gleaned in the lanes where he crept,
Till the wheels o'er the pavement dragged heavy and cruel,
And spent with the strain of his burden, he slept.

Will any one care, as the many pass nigh him ?
A thread-bare, wood-sawyer, bent, wrinkled and old,
Caught sight of the sleeper, came near and stood by him,
And read in the picture the story it told.
Hungry face, scanty raiment, with barely a button,
Hatless head, naked feet, fretted sore on the stone—
He fished out a morsel of dry bread and mutton,
And left him the dinner he'd brought for his own.

There were eyes bright and merry, eyes tearful and tender,
On the watch ere the old man had tiptoed away,
And some, in that meek loan of love and its lender,
Saw the angel that stooped where the little boy lay.
And the soul of the child, through the tatters that wound him,
Drew the souls of the clad and the fed to his side ;
Young and old brought their blessings to scatter around him,
And crumbs from the table of God to divide.

A boy and a man dropped a dime and a dollar,
Women opened their purses by ones and by twos,
Willing hands from the mansions, both greater and smaller,
Brought a jacket, a hat, and a stout pair of shoes.
All stealthy and silent, with gentle conniving,
They laid down their gifts with the wood-sawyer's crust,
And lingered to see, at the sleeper's reviving,
His bashful thanksgiving smile up from the dust.

Soon the little boy woke. Was it bounty or plunder
Spread out at his feet ? Then a laugh in his ears
Turned his face where a glance gave the key to the wonder
And he clasped his new riches with blushes and tears.
And his helpers had joy that was tender and holy
When they looked then and after, full many a day,
Down the street where the toil-ridden child of the lowly
With his cart and his treasures had trotted away.

O, hearts that are human are human forever !
You may close them in caste, but they beat through the wall.
Wealth and want own a kinship no breeding can sever,
And in sorrow the lowest are brothers of all.
Bound love needs the magic of pity to free it ;
Men only are selfish because they are blind ;
When the poor help the poor, if the whole world could see it,
The haughty would blush, and the cruel grow kind.

—THERON BROWN, in *Youth's Companion*.

A PUBLIC SCHOOL IDYL.

Ram it in, cram it in,
Children's heads are hollow;
Slam it in, Jam it in,
Still there's more to follow—
Hygiene and history,
Astronomic mystery,
Algebra, histology,
Latin, etymology,
Botany, geometry,
Greek and trigonometry—
Ram it in, cram it in,
Children's heads are hollow.

Rap it in, tap it in—
What are teachers paid for ?
Bang it in, slam it in,
What are children made for ?
Ancient archæology,
Arian philology,
Prosody, zoology,
Physics, clinicology,
Calculus and mathematics,
Rhetoric and hydrostatics—
Hoax it in, coax it in,
Children's heads are hollow,

Rub it in, club it in,
All there is of learning:
Punch it in, crunch it in,
Quench their childish yearning
For the field and grassy nook,
Meadow green and rippling brook;
Drive such wicked thoughts afar,
Teach the children that they are
But machines to cram it in,
Bang it in, slam it in—
That their heads are hollow.

Scold it in, mold it in,
All that they can swallow;
Fold it in, hold it in,
Still there's more to follow.
Faces pinched, sad and pale,
Tell the same undying tale—
Tell of moments robbed from sleep,
Meals untasted, studies deep.
Those who've passed the furnace through,
With aching brow, will tell you
How the teacher crammed it in,
Rammed it in, jammed it in,
Crunched it in, punched it in,
Rubbed it in, clubbed it in,
Pressed it in, caressed it in,
Rapped it in, and slapped it in,
When their heads were hollow.

—Puck.

EVAPORATING.

HOW TO SULPHUR FRUIT.

Concerning the best methods for drying fruit by the sulphuring process, the following information, said by the *California Fruit Grower* to have been derived from successful experience, is of interest.

The sulphuring box or closet must be tight jointed all around, with the door well battened at the sides, top and bottom, the only opening being a vent hole about six inches in diameter in the center of the roof. Without the vent there is no current of air, and consequently no even distribution of the sulphur fumes. A slide to regulate the draft should

be set in the vent hole. The width and depth of the sulphuring box should be adapted to the size of the trays in use in the drying field. For height, eight feet is as great as can be worked conveniently.

Burn the sulphur outside the box in a charcoal stove, such as is used for heating flat-irons, covering the top of the stove with a sheet-iron hood tapering to about four inches in diameter, where a pipe of four feet in length can be slipped on and off. This pipe should lead into the bottom of the sulphur box at the center, where the fumes will be delivered at the proper temperature to save scorching the lower trays of fruit. The hood should have a door to take the sulphur pan in and out. To insure a good draft from the stove through the sulphur box, the stove should be set below the level of the box, and if the pipe trends upward the draft will be increased proportionally.

For sulphuring, the fruit contained in a box 8 feet high by $3\frac{1}{2}$ feet square, two heaping tablespoonsful of powdered sulphur sprinkled upon a live coal and burned on a pan set in the stove, with lower draft open and hood door closed, is sufficient. Good results have been obtained from burning a mixture of two-thirds powdered sulphur, and one-third powdered charcoal. From twenty to thirty minutes is as long as fruit should remain exposed to the sulphur fumes to avoid deposit of metallic sulphur, and yet produce a bleaching effect. Practice will train the eye to this, keeping in mind that the greener the fruit, the longer the exposure that is necessary.

Where large drying operations are in progress, a row of three sulphuring boxes can be served from one stove, operating them successively and having pipes made with sheet-iron caps to cut off the communication with all but the one box which is being sulphured. Caps are better than dampers, as they entirely cut off the connections, although involving the slight trouble of unjointing the pipe to put the caps on.

Sulphuring preserves for a long time the bright, rich color of apricots and peaches, and the whiteness of apples and pears, and when practiced as above described not only imparts no bad flavor to the fruit, but actually enhances it by preventing fermentation; on the other hand, over-sulphured fruit, however beautiful, retains the sulphur taste to an offensive degree, proportioned to the extent of the over-sulphuring.—*Popular Gardening.*

RECIPES.

HOW TO USE ARSENICAL POISONS ON APPLE TREES.

Editor Rural World:

I have had to answer so many inquiries as to the solution of arsenic to spray apples trees, that I want to use a small space in your paper to tell all fruit-growers that it is easy to make a solution of the white arsenic. Don't use more than two and one-half ounces to 100 gallons water, and one-half a can of Lewis' lye is sufficient to make a perfect solution. Better dissolve the lye in a small tub of water, then add the arsenic and stir it for a few minutes and it will dissolve perfectly. This is reliable and will not burn the foliage. Be very careful that you have no trash in the water as it will clog the valve of the pump. Spray during a calm, for if there is much wind it will be impossible to reach all parts of the tree, and it would be better to do it during clear weather, for should it rain immediately after spraying, it would wash all the poison off. Be sure and put the poison label (skull and cross bones) on your barrel, and put your arsenic where there will be no danger to your family. Remember while you are handling it, you are handling a deadly poison, and with this before your eyes there should be no danger of mistakes.

A. GOSLIN.

HOLT COUNTY, Mo.

I give the following recipe to keep rabbits, borers, sheep and mice from killing trees: Four pounds of sulphur, peck of lime slackened with hot water, old soap-suds, and tobacco, (boiled). While hot add one gallon gas-tar and one-half gallon of crude carbolic acid. Stir well. For summer wash, leave gas-tar out and add in place of it one gallon of soft soap, and for old trees with rough bark on, use the water or soap-suds to slack the lime with. Make the wash the thickness you would to wash house or fencing. To keep rabbits from girdling, wash in late fall or about the time of frost, and as high as rabbits can reach. For

summer, wash the last of May or June. If the miller has laid the egg, which produces the borer, this wash is death to the egg, and millers will not deposit their eggs in a tree thus washed with the wash described. Wash the trunk, branches and limbs as far as the rough bark goes. A man can wash from 200 to 300 trees a day, with a forty-cent flat paint brush. I would not do without this wash for one hundred dollars a year.

JACOB FAITH.

FOR BORERS AND RABBITS.

Pure pine tar.....	I gallon
Strong soft soap.....	I pound
Boiled linseed oil.....	I quart
Tobacco cut up fine.....	$\frac{1}{4}$ pounds
Strong sifted ashes.....	I quart
Pulverized rosin.....	I pound

SMALL FRUITS.

Ind. Fruit Growers' Journal:

In a recent number of your most excellent paper I find the observations of J. B. Miller on some of the new varieties of strawberries. Now for the purpose of contrasting the behavior of some of the same varieties in my locality: My soil, I presume, is entirely different from his; my soil is red or mulatto as it is termed by some, well underdrained with flint and lime stone rock. The Belmont, which he calls perfection, is here a good, strong growing plant, no rust or sun scald, yields hardly half a crop, of all imaginable shapes from an inch long and round to fanshaped seven or eight inches from point to point and about one and a half inches across the center. I shall discard it entirely. Jewell and Parry quite productive and handsome, too soft to ship, quality

only fair, Jewell makes too few plants; Parry rusts badly some seasons, therefore not reliable. Crimson Cluster the best table berry I have, not very productive, cannot stand our hot, dry weather. Bubach has shown itself the best plant I have, no rust, begins to ripen ten days before Belmont, very large, very productive, quality only fair. I think it will be a good shipper if I can only prevent it from growing too large. The Mammoth fruited with me from fall set potted plants, a very fair crop, berries large enough, of good quality, beautiful color, plant not so good as the Bubach, a staminate. I hear some one ask have you got the much praised Jessie? Yes, I have and I think it should bear the name of Jewell in place of the plant that does. With one year's trial I think more of it than any berry I have ever fruited. I think it far ahead of the Crescent in every respect, and time will prove it. I will test it with Sucker State, Mr. Miller's favorite berry, next season. I have Sucker State plants set the first of last April. They are immense. My experience in berry growing is 16 years at Kansas City. I am no originator and have come to the same conclusion as Mr. Miller, to buy no more high priced plants, and would say to him if he has some promising seedlings that are quite early and as good as I suppose the Sucker State to be, and he will do to others as he says he wants others to do to him, he can send one dozen each of his two seedlings to me if they are not both pistilate, and I will give them a fair trial under such restrictions as he may dictate. I refer you to President Evans and Secretary Goodman, of Missouri State Horticultural Society.

W. M. HOPKINS.

751 EAST ELM STREET, SPRINGFIELD, MO.

ORCHARDS.

COMMERCIAL APPLE.

Apples of greatest commercial value:

SUMMER—Early Harvest, Red Astrachan, Maiden Blush.

FALL—Summer Pennock, Rambo, Grimes Pippin.

WINTER—Ben Davis, Winesap, Johnathan, York Imperial.

Distance apart to plant apple orchard twenty-five to thirty feet, owing to lay and quality of land and varieties.

Proper height for top to form, three to four feet. Reasons why: Trees will last longer, won't break near so bad; will not sun scald or bark burst so bad as if higher, fruit will be much easier picked. I measured a number of our Ben Davis planted sixteen years ago; found them from three to five feet. Soundest and best trees are the three feet trunks; worst are five feet trunks. I place myself on record in favor of the top at three to four feet high.—*N. F. Murray.*

SELECT PEARS.

A correspondent wishes to set out a small pear garden, and asks for a select list of a few for a succession, more particularly of such varieties as are uniformly good and can be depended on every year. In answer we name as earliest the small Summer Doyenne, a good grower and great bearer, but not of the highest quality, its merits being its earliness, ripening with the wheat harvest. If the crop is thinned early in the season, the pears will be larger, handsomer and better in quality. One or two trees will be enough. Next to this is Gifford, an excellent pear, but the tree being a slender and crooked grower, it is but little raised by nurserymen. It should be worked standard height on some

straight and vigorous stock. Then follows the Tyson, slow in coming into bearing, and afterwards bearing too heavily and requiring thinning. Clapp's Favorite ripens between Tyson and Bartlett, a good-sized, handsome pear, hardly first quality, and being liable to rot at the core, should be gathered a week before softening. This quality is probably the chief reason that it has rather declined in popularity of late years for market. The Bartlett, the most popular of all pears, immediately follows, and ripens at the North early in September, and is always good and never rots at the core. Then comes the well known Seckel, the handsome and vigorous Boussock, the valuable and productive Howell, the delicious Sheldon (when well grown), unexcelled Bosc the uniformly excellent Anjou, the reliable Lawrence, and the Josephine de Malines, which ripens at midwinter. The season of the later ones will vary in ripening a month or two, with the mode of keeping. For dwarfs the Louise and the Angouleme will not be omitted.—*Country Gent.*

COMMERCIAL ORCHARDS.

The subject of "Commercial Fruit Growing" was discussed at some length by F. R. Palmer, at the Troy, Ohio, meeting, a practical horticulturist of Mansfield. Among the more important points elicited by this discussion were the following: Where the soil and location are favorable, and where a good market can be conveniently reached, the growing of choice fruit for market is a paying industry, but the measure of success attained will depend upon the practical knowledge and skill of the operator. He must not only be able to make a judicious selection of varieties adapted to his soil and climate and to the markets for which they are grown, but he must understand and practice the proper modes of culture, and also of gathering and marketing the fruit.

A majority of the failures in fruit growing are made by farmers who try to farm extensively at the same time. The time and attention that should be given to the fruit is put upon the farm crops, and the fruit fails through lack of care. Not one farmer in fifty knows how to grow and market fruit so as to get the most money out of it. Success-

ful fruit growing requires more scientific knowledge, reducible to practice, as well as more skill in the performance of the work required, than is necessary for the same measure of success in the growing of ordinary farmcrops. It is blind folly to think of success in commercial fruit growing by mere guess-work and blundering in the dark; it is a useless waste of time and labor.

An apple orchard, for commercial purposes, should comprise but few varieties, and they should be such as are known to be hardy, productive, and adapted to the soil and locality of the grower. The fruit should be of good size, handsome appearance, of good keeping qualities, and firm enough to ship well. Apples, when gathered, should be handled as carefully as eggs. Apples for shipping, should be gathered earlier than is customary with most growers. They will not only ship better but keep better. When gathered and left in the orchard until barreled, they should be piled on clean wheat straw, and covered with corn fodder, to protect them from sunshine and to carry off the rain. Never cover with straw; the chaff falls down among the apples, sticks to them, and greatly injures their appearance.

To make a success of peach growing, one should select elevated sites, and warm, sandy soils, or localities near large bodies of water. In most situations a peach orchard should be well cultivated. Keep down all weeds and grass, in order to repel the borer, so destructive to peach trees. Wash the trunk of the tree with strong suds made of soap and carbolic acid, and scatter wood or coal ashes around the roots of the tree.

BIRDS.

THE SPARROW PEST.

The pest of the English sparrow is in very deed becoming intolerable. Multiplying in numbers two or three times a year, they cover a fresh area of territory of fully 500,000 square miles every year, they are rap-

idly becoming as great a pest in America as the rabbits are in Australia. It is by their vast numbers and their capacity for devouring pretty much every thing which they ought not to touch, they become so formidable. The United States Department of Agriculture in answer to an inquiry to that end, recommends the following method of poisoning them as the most effective yet employed:

Dissolve arseniate of soda in warm water, at the rate of an ounce to a pint; pour this upon as much wheat as it will cover (in a vessel which can be) closed so as to prevent evaporation, and allow it to soak at least twenty-four hours. Dry the wheat so prepared and it is ready for use. Three kernels of this will kill. Winter is the best time for operations. other birds are then absent and sparrows are hungry, alighting in flocks in the streets after passing teams and along railroad tracks, where grain is scattered from wagons and cars. Here poisoned wheat may be administered with wholesale destruction to them and little danger of harm to anything else. If an occasional pigeon or chicken that has no business abroad should suffer, it is comparatively of little consequence. If the great evil is to be abated at all, it must only be required that it be done with the least practicable injury and inconvenience.

GRAPES.

THE WORDEN GRAPE.

Eds. Country Gentleman:

In fruits, vegetables, grains and animal products both producer and consumer seem to unite in demanding varieties that combine size beauty, hardiness and productiveness with reasonably good quality. In other words the varieties that have been the most successful, commercially, in the past, have been those that would produce largely under the ordinary care of average intelligence and environment, and that had good

enough quality to induce free purchase at a fair price. Sometimes, even when the quality is not strictly ideal, size, beauty, abundance and consequent cheapness combine to make a given variety the favorite, both with producer and consumer. "A beet that will grow is better than a cedar of Lebanon that won't grow!"

There seems to be, some way, a preconceived notion that productiveness and high quality never go together, and so productiveness in any new variety seems to prejudice many at the first against its quality. For example, I can distinctly remember when the Peachblow, and later, the Rose potato, the Baldwin, Ben Davis, Rome Beauty and King apple, the Fultz and Clawson wheat, the Wilson strawberry and the Concord grape were each pronounced by connoisseurs to be coarse in quality and unfit for general use. But they would produce, and gradually consumers, even the critical, found that they were really of good, palatable and inviting quality, and so these and a few other more recent varieties have come to be the chief commercial ones of their kind in their season. For example, I think it not an over estimate to say that for the last fifteen years more pounds of the Concord grape (or of the Concord type) have been sold in the markets of the United States than of all other kinds put together, aside from foreign and California grapes.

The Worden, however, is the grape on which I am most inclined to grow enthusiastic. I believe it and the Concord are to be the grapes for the million in this latitude, and that the Worden is to lead when it becomes as well known as the Concord. The berries are larger, the clusters heavier and as compact, the color and bloom fully equal, while the vines seem just about as hardy and productive. But the grape itself seems to me sweeter, richer and more delicate in flavor—indeed, better every way as a table grape than the Concord; and it is at least a full week earlier, and hangs as well on the vines. Almost its only defect is one that I notice this year for the first time to any marked extent, and which I mention in these columns so as to inquire whether it is really a fault of the grape or only of this particular season. It is this, that when fully ripe, or a little past ripe, the stems, though tough and strong where they join the vines, are brittle further out, so that the clusters are liable to break into sections if jarred in picking or handling. The grapes themselves do not break off singly; the branches and even the main stem break, each part retaining its grapes. Have others in other localities and latitudes noticed this fault?

I should be glad also of reports and opinions as to the hardiness, productiveness, flavor, size and market chances and qualities as compared with the Concord. It seems to me that here, as soon as it is well

known in market, its size, beauty, flavor and early maturity will give it an average market value of one to two cents more per pound than the Concord, during its entire season, which laps upon that of the Concord at least two weeks.

W. I. CHAMBERLAIN.

AMES, IOWA.

SCIENTIFIC.

STUDIES IN OLD GARDENS.

The convent garden of the earliest English monks, of which Venerable Bede, the first historian of our race, tells us in his history, deserves to live in the memory of all English speaking gardeners. In the days before the monastery became a place of lazy luxury and idleness, its garden was a school of industry and of horticulture, and in it, we have reason to believe, arose the names of most of our fruits and flowers. The words pear, peach, lettuce, lily, peas, and perhaps others, are definitely ascribed by philologists to the Latin words for these objects introduced by St. Augustine and other Roman missionaries who converted the Saxons to Christianity. Moreover, an able English scholar has shown that the majority of the English names on the earliest lists of flowers are but "Latin disguised by long familiarity and attrition"—e. g., mallow, mint, poppy, rue, laurel, feverfew and rose. Mr. Earle has made it probable that in the word "hip," as applied to the briar rose, we have the survival of the name by which the flower was known before it was called the rose. But he supposes the name "rose" and many other Latin names for flowers to have been learned from the Latinized British natives. We may, however, regard it at least as possible that they were learned of the Latin speaking monks. In any case, the flowers of

the monastery garden have a peculiar interest; nor is the fact without interest that the early missionaries of our race who converted Germany to Christianity carried with them into the German garden and the German language some of the English names for plants and flowers.—*American Garden.*

ELEMENTS ESSENTIAL TO PLANT GROWTH.

Growth in the vegetable as well as animal kingdom is the result of the consumption of food. All plants from the tiniest to the giant Redwood, take a portion of their food, organic, as well as the inorganic or mineral elements, by the aid of water, from the soil and from the air, by the pores in their leaves and branches.

AIR AND WATER.

The air, composed mainly of oxygen and nitrogen, is the compound in which all plants live, and from which they derive a large portion of their food.

Water, composed of one equivalent of oxygen and one of hydrogen, has some properties which deserve careful attention. Its powers as a *solvent*, incorporating into its own mass, both gasses and solids, is truly remarkable. It absorbs from the air a portion of oxygen, nitrogen, carbonic acid, or almost any other gaseous substance or vapor it may contain. Its affinity for certain solids, as lime, ashes, clay, etc., is truly wonderful, and the value of manures depends largely on their capability of absorbing moisture. Water is the chief medium by which growth elements are conveyed to the roots, and conveyed in the sap to all parts of the plant structure. It also enters the leaf pores of every growing thing.

CARBONIC ACID.

The compound formed by two equivalents of oxygen and one of carbon, is called carbonic acid. Water absorbs a little more than its

own bulk of this compound, but like other gases it may be greatly compressed; so that water may be made to hold several times its own bulk of it, as long as the pressure is maintained.

Carbonic acid is about one-half heavier than common air, hence ascends much more slowly than the elementary gases, and exists in largest quantities near the surface of the earth, and spread by the winds over great areas, constantly entering into the composition of the air. Though on an average it constitutes only the one twenty-five hundredth part of the atmosphere yet it may in some localities, as when forests are burned, form a greater portion.

In a pure state, carbonic acid is fatal to all plant life, yet, existing as it does in the air, it constitutes the greater portion of all plant food, being constantly imbibed by the leaves and roots. The experiments of De Saussure, as to the effect of carbonic acid, in excess of what is usually contained in the air, on plant life, are instructive. The growth of plants was stimulated, in the sunshine, when the quantity of this compound was increased so as to constitute about one-twelfth of the air; when it formed two-thirds it ceased to grow, and speedily died when it was made one-half. In the shade any increase in this gas in the air proved injurious.

Carbonic acid combines with the alkaline elements, lime, potash, soda, etc., to form the carbonates which are in somewhat common use as fertilizers. Hence, this compound of the organic elements is indispensable to plant growth as one of the active forces in the preparation of plant food. Whence comes the supply of this? Science says it is produced by fermentation of vegetable substances, generated in the decay of animal and vegetable matter; perhaps the larger portion results from the daily burning of cords of wood, and tons of coal by the million.

AMMONIA.

Another compound consisting of one of nitrogen and three of hydrogen, is known as ammonia, which exerts a powerful effect on plant growth. Water can be made to contain 670 times its own bulk of this gas, and this proportion is known also as hartshorn. The pure gas has an acrid alkaline taste, and not only kills growing plants, but disorganizes them.

All vegetable substances absorb ammonia rapidly, as do even the clays of our sub soils when in contact with it. Charcoal will absorb about 95 times its own bulk of this compound, and light friable soils,

having a considerable portion of organic matter retain a still greater portion.

The most common forms in a commercial way are carbonate, nitrate and muriate of ammonia, which have a direct and favorable influence on vegetable life, not only promoting rapidity and luxuriance of growth, but in the interior portions causing the substances taken up as plant food to separate from some and recombine with other elements, and so build up the structure. Uniting successfully with the organic elements and their principal compounds as the nature of each plant requires, it seems to be a sort of essential distributive force.

NITRIC ACID.

The combination of one of nitrogen with five of oxygen forms nitric acid. It derives its name from nitre or saltpetre, being generally obtained by the distillation of this permanent salt. It imparts a yellow color to most animal and vegetable substances. It is not found in a pure state, but in the tropical regions it is found in combination with lime, soda and potash, and known as nitrate of soda, lime and potash. These salts are soluble in water, yet are solid when dry. The nitrates of lime, soda and magnesia, so strongly attract moisture from the air that in damp weather they are inclined to assume a liquid form, and hence, in soils, increase its powers of absorbing and retaining moisture. In small quantities these have a salutary effect upon plant growth, especially the grasses; yet when a soil has naturally enough of these elements to induce the vigorous growth of any plant, the addition of more would probably not prove beneficial.

The most important use which nitric acid has in its relation to soils and plant growth, consists in its remarkable solvent powers, for by its action the alkaline mineral elements become capable of assuming a liquid form, the condition precedent to their being used so as to influence and aid plant growth. As it is exhaled by the leaves, its use is similar to that of carbonic acid in perfecting the organization.

PHOSPHORIC ACID.

Another auxiliary to plant growth is phosphoric acid, which by combination with potash, lime and soda, constitutes the valuable commercial fertilizers, known as the phosphates, which are extensively used.

All of the compounds treated in this paper are the immediate promoters of plant growth, being essential to perfect organization, germi-

nation of seeds and sustaining plant life during all the stages of growth. As a more thorough knowledge is gained of the elements employed and the natural forces which universally operate in forest, field, and garden, better understood will be the nature and needs of every plant cultivated, and hence such food and care can be given as it naturally requires.—*L. A. Simmons.*

STUFF AND NONSENSE.

THOMAS MEEHAN, GERMANTOWN, PA.

Under and in the name of sanitary science, numerous crimes against horticulture are often committed, that bring a blush to the cheek of common sense. We all know how it is in gardening, there are scores of pretenders to one of real intelligence, and "by the same token" as some of the old countrymen would say, charlatans abound in the medical profession as well as elsewhere.

We laugh at the ignorance that prevailed in the olden times. Many old people among us are still young enough to remember, when the whole medical profession joined in forbidding a drop of cold water to a fever parched lip, and blood-letting was the sovereign remedy for every trouble. One or two men who prepared text books so taught, and few had industry to think for themselves. Is it any better to-day? We laugh at the inability of those of the past, to see the relation between cause and effect; are we any wiser to day?

In the time of Queen Elizabeth, there was a bishop in England very fond of horticulture. His name was Grindall. Bishop Grindall was one of the first to raise fine grapes under glass. Proud of his grand success he sent some to the virgin Queen. Bess very much enjoyed the grapes; whether she made a little pig of herself is not told; but a day or two after-

wards she was taken sick. It would not do in those days, any more than in these, for a doctor to say he didn't know, so it was concluded that those grapes must have had the plague about them. It was charged that, knowingly having the great plague in his house, yet Grindall sent Her Majesty grapes. It was fortunate that the connoisseur sent to examine the affair found the bishop's family in a usual state of health, or the accused might have lost his head.

Not long since there was some typhoid fever in a district near Philadelphia. "The physicians"—they always put in this ambiguous plural—said it "must be" from drinking Schuylkill water—the great river that supplies the huge city with drink. Then it broke out in a district 400 feet above tide-water, and where the water was from a large and particularly healthful crystal spring. As it would not do to charge it to water here, the trees caught it. "The physicians" declared there were too many of them, and a large number of beautiful specimens, some of them of great value and variety, fell before the ax or were ruined.

Not fifty miles from Philadelphia, perhaps nearer New York than that city, an unusually intelligent florist undertook to get up a trade in aquatic plants. Some billious trouble appeared in the house, and "the physicians" attributed it to the water tanks of the poor florist, and he has been literally ordered to leave the place.

I know a church entirely covered with beautiful vines. It was the pride of the district. Some one, who had seen the sun dry a pile of clay, started the whim that the shade of the leaves kept the sun from the walls, and that the dampness was unhealthful. "The physicians" joined in the cry; the beautiful vines were cut away. It was no use for those who had practical experience to say that vines kept the walls dry,—for the intelligent horticulturist to point to the innumerable rootlets sucking from the walls every particle of moisture, for the antiquarian to tell of ivy-clothed ruins of the old world—ruins still remaining because the ivy-dried walls defied the pick of the iconoclast to reduce them. "The physicians" had said. The vines had to go.

Just now the great bugaboo is *Bacterium*, *Bacillus*, *Micrococcus*, and an innumerable string of hard words are slung at us by "the physicians," and to read what they write for us makes it a wonder that any human life is left on our planet; but there are bacteria in dew drops, and more of these terrible creatures in the teeth-tartar of everybody's mouth than in all the water they drink in a whole life time.

Flowers are banished from our living rooms. "The physicians" say they are unhealthful; especially at night, but the poor consumptive, given up to die, takes his tent and camp utensils, sleeps out on the fresh

green grass for months, and comes to the flower-banished home a new man—but only in time to become the doctor's patient again.

It is quite sickening to read the miserable twaddle in the daily papers, whenever matters connected with horticulture,—especially sanitary matters affected by horticulture or the kindred sciences, come before them. Here are papers that pride themselves on their accuracy; papers that have a rule to discharge at once any reporter whose statement of every day facts are found in the slightest degree inaccurate; and yet can scarcely ever offer a paragraph bearing on horticulture that does not teem with error, or even absolute nonsense.

Is the fault with horticulturists themselves? Do they make it a point to keep abreast with the world in the march of general intelligence?

I will not answer these questions now. I only know that horticulture affords scope for a greater breadth of human knowledge than any other pursuit,—and if the true horticulturists would take pride in diffusing the varied knowledge they ought to possess, not even the crude *ipse dixit* of "the physicians" could lead to the perpetration of the enormities I have briefly outlined.—*Popular Gardening*.

DO VARIETIES RUN OUT?

PETER HENDERSON, JERSEY CITY HEIGHTS, N. J.

If, by the question is meant that varieties of any kind under *general* cultivation run out, I say, No. That, under unfavorable conditions, varieties are *apparently* less vigorous than when first originated from seed is certain. But it is a run of unfavorable conditions only that can bring about such results; such as over propagation from weak cuttings or slips, planted in poor soil, or in temperature unsuited to their nature, (such as growing hardy plants in tropical latitudes), or in doing anything inimical to the

nature of the plant. Thus, the Violets, and some of our Carnations, and Roses are beginning to lose vigor, and become diseased. No wonder that they rebel, when instead of giving them the rest that their nature demands in the winter months, they are "forced" without cessation, year after year, at a winter temperature averaging perhaps 70 degrees, when in their natural condition, the temperature is probably 30 degrees less for two or three months in winter.

I believe that there is no such thing as *permanent* degeneration of any fruit flower or vegetable that is propagated by cuttings, grafts or roots. Our hardy Concord grape is found, when grown under proper conditions, to be just as perfect as when first introduced nearly half a century ago, and the foreign grapes, such as the Black Hamburgh and many others, are as perfect even under artificial culture,—but which gives them the needed winter rest—as they were one hundred years ago. The Wilson and Sharpless Strawberries and the Early Rose Potato can, under the most favorable conditions, be found just as perfect as when first introduced. New plants when first sent out, often suffer from over propagation, and seem to be weaker than they really are, for example; When we sent out the "Sunset" Rose some six or eight years ago, the demand for it, necessitated every inch of it being used for propagation, which so enfeebled the stock that for two or three years it was generally condemned, until its vigorous nature asserted itself, so that now its size and coloring are fully up to the original specimen from which it sprung.

An excellent example of how growing a plant foreign to its nature, induces temporary degeneration is found in the Oats. Oats from England, Scotland, or Norway, weighing 44lbs. to the bushel, the first year after sowing in our tropical summer, fall to 40 lbs., that product being sown the second year, again is further reduced to 35lbs., which again being sown the third year falls to the normal weight of our American oats which is 28 or 30 lbs. per bushel. Were the culture again reversed, by sowing these same oats (which had become degenerated by being grown in our climate) in the lower temperature of Britain, they would climb up in three years to their normal weight there of 44 lbs. or 46 lbs. per bushel.

This subject is too comprehensive for an ordinary magazine article, but I think a large majority of cultivators of experience will agree with me in believing that there is no such thing as permanent degeneration of any plant, whether increased by seeds or slips, even should the cultivation reach into thousands of years.—*Popular Gardening*.

PLANT INTERMARRIAGES.

Nature seems to forbid these in the vegetable world, as distinctly as reason, experience and sacred law join with her to forbid them in our own world. Dr. Asa Gray, during his life, poured light on the many and singular contrivances by which cross-fertilization is provided for among plants, and he does not hide his light under a bushel, but gives illustrations and explanations so clear as to be plainly understandable with the aid of the very slightest acquaintance with botany. This useful study is well worthy of attention, if only to afford a better appreciation of the mysteries and wonders of plant-life, which are really as interesting as an Arabian Night's tale. But the study is worth more than this. It is obviously an intent of the Creator that the plants that meet us everywhere, and as to which we are continually asking, "What are they for?" should not merely be trampled under foot, but should be made subjects of examination. They are, like the rainbow, tokens of promise, of hope, of resurrection, and of a brighter, happier world.

Among the expositions which Dr. Gray gives of Mr. Darwin's deductions from his wonderful stores of observed facts and test experiments, the comparisons ingeniously made between the seedling plants of exactly equal vigor and age, set in the same pot and same soil; one self- or close-fertilized, and the other fertilized by pollen from a distant plant—are especially notable. The difference in growth was always in favor of the latter, and, in many cases, so great that it seems to promise wonders in the way of improving varieties. All of us who are dwellers in the country, know that wheat does not sport in varieties or mix so freely as Indian corn. The blossom of wheat has been said by experienced hybridists to be fertilized before it leaves the sheath, so that, in case of this valuable grain, man's aid seems to be wanted, not only through all the many perils and risks of its growth in the fields, but for the infusion of vigor into the seed through a selection and conveyance of select and non-related pollen. We hear of but few cross-breeders who have made wheat a successful subject of their useful skill. Yet it is perhaps the plant, above all others in temperate climes, which promises the greatest results and the most widespread advantages from efforts in this line.

W.

MANURES.

EXPERIENCE WITH MANURES AT ROTHAMSTED.

Sir J. B. Lawes says that a continuously unmanured plot in his grounds at Rothamsted, now yields only 10 bushels of wheat per acre, instead of about 12, the average of the preceding 10 years, or 13, the average of the preceding 36 years. The farm yard manure plot, on the other hand, yields 38 bushels, of 60 pounds per bushel, against an average of only $32\frac{1}{2}$, but of nearly 61 pounds per bushel, over the preceding 10 years, and of $33\frac{3}{4}$ bushels, at $60\frac{1}{4}$ pounds per bushel, over the preceding 36 years. That is to say, whilst the unmanured produce is about three bushels below its average of 13, the farmyard manure produce is more than four bushels above its average of $33\frac{3}{4}$. Again, another plot, which receives, besides mineral manures, a liberal, but not excessive, amount of salts of ammonia, yields nearly 36 bushels, at $59\frac{3}{4}$ pounds per bushel, against an average of only $32\frac{3}{4}$ bushels at the same weight, over the preceding 36 years; that is, it gives an excess this year of rather over three bushels. Another plot, on the other hand, with the same mineral manures, but one and a half time as much salts of ammonia as plot seven, yields only $35\frac{1}{4}$ bushels, against its average of $36\frac{1}{2}$ bushels; that is, with the excess of ammonia salts, there is, this year, $1\frac{1}{4}$ bushel less than its average, and even less than with the smaller amount of salts of ammonia. The mineral and nitrate plot, again yields only $33\frac{3}{4}$ bushels, against its average of $36\frac{3}{4}$ bushels, showing, therefore, a deficiency of three bushels, this year.

LIQUID MANURES.

An excellent fertilizer for flowers is made by tying up in a piece of canvas, about a teacupful of soot; immerse in about double its amount of soft water, for a few days, and the water is ready for use. It is an excellent stimulant, and, if applied carefully, as often as necessary, will

brighten up almost any flower, and especially bulbous plants. Another cheap manure is prepared by mixing about $\frac{1}{2}$ pound of cow manure with two gallons of water. This is applied from once to twice per week, and is a very safe fertilizer.

ASHES FOR STRAWBERRIES.

President J. M. Smith said he put on wood ashes, and his strawberries averaged 250 bushels to the acre—applying about 75 bushels an acre. The crops were well manured and cultivated, and in the face of drouth and rains, other adverse conditions, the berries brought him over \$500 an acre. But the average yield with others was not half that sum.

VALUE OF CULTIVATION.

Prof. Henry said that in California the great remedy for drouth, where they are nearly without rain for several months, was surface cultivation. He asked a man who had a 600-acre orchard, "How often do you cultivate that orchard?" He said, "I don't know." I said, "Ten times?" He answered, he did not know. I asked, "Twenty times?" He answered, "Perhaps; as soon as the teams go through one way they go through the other, and that is kept up during the season, with all sorts of implements." He has 82 men working. They thus get along without water, and their trees grow right along.

STONE FRUITS.

THE GOOD PEACH.

We send you by this mail a sample of what we think is the coming late white peach. It originated near York, Pa., and will be known as "Good," in honor of the introducer. It is nearly or quite as late as Smock, and much larger, and, being a good white peach, will supply a long felt want.

H. M. ENGLE & SON.

REMARKS:—This is one of the finest peaches we have ever eaten. It is nearly three inches in diameter. Skin creamy white with a faint crimson blush on one side. Flesh cream colored to the pit, very juicy, tender, melting, sweet, sprightly and of the first quality. The pit is nearly free.—*Rural New Yorker.*

THE ELBERTA PEACH.

The Elberta Peach has made great gains in popularity the past season, as it became better known and appears to do well north as well as south. Marketmen in New York, Philadelphia and Boston indorse it highly, and say they obtain prices from one-third to twice as much more than for ordinary varieties. It is claimed to ripen at a time when there are no other yellow peaches in the market; before the Crawford Late and after Reeves' Favorite has gone. It is large and productive, and growers say, the trees have great vigor and hardiness, bearing when very young, in some cases when one year old. Good shipping qualities render it profitable, while its excellence and beauty cause a ready sale. The happy days of peach growers will return again, if its good qualities hold out, and it does not deteriorate from the use of weak buds in the desire to increase so valuable a stock as this.

PEACH TREES ON WHITE THORN STOCKS.

It is not to be supposed that horticulturists have as yet learned all that is worth knowing about plant-life, nor discovered all the different and possible modes of propagating the various kinds of plants under cultivation. It has long been supposed that the peach would thrive only when budded or grafted on some closely allied stock, such as the almond, apricot, plum, or seedling of its own species; but we are now informed by the *Revue Horticale*, that the common White Thorn (*Crataegus oxy cantha*) may be employed not only as a stock for the peach, but also for the plum and almond. It is stated that Mr. E. Lefort, Secretary-General of the Horticultural Society of Arrondissement of Meaux, France, has a number of peach trees trained as standards and on walls which are grafted on White Thorn stocks, and that the trees are vigorous and productive. If the peach will thrive on White Thorn stocks in France, it will do so in this country, and probably better on some of our native species of the thorn than on the European. Those who are interested in such matters should give the thorn stock a trial the coming season and report result.

A. S. F., in *American Garden.*

THE FUN OF FARMING.

Some men think if they only lived on a farm, they would be happy. But of course agriculture in books is nicer than it is in the country. I suppose somebody has been telling them that the farmer is the only independent man on the face of the earth, and that the life of the tiller of the soil is one of peace and happiness, with none of the cares of business or the wearing rush of the city to drive him to premature old age and insane asylums. I have known some farmers, and have a slight idea of how much work farmers do.

I will begin about the 1st of January. That is the laziest time of the year for them. If our farmer keeps cows, he is obliged to be up early in the morning, to get the milking done, and if he keeps a hired man, and tries to wake him up in the morning, you would think he had taken chloroform. He sleeps so hard he might be kidnapped and given a bath without waking him up. After milking, they go into the barn, to clean the stables. Does any one know how cold a pitchfork handle is on a cold winter's morning? It is colder than the supervisor or trustee he voted for, on the morning after election. After he has hold of that pitchfork about five minutes he begins to wish his parents were born on different sides of the globe and had never met each other. Now comes the business of watering horses, cows, and all. A farmer never suffers for want of exercise. After dinner, he has time to speak to his wife, while the hired man chops the wood.

If there is nothing else to do after dinner, there is always one resource, sprouting potatoes. If there is one thing more delightful than another, it is to sit upon a reversed peck measure in the cellar and sprout potatoes, hour after hour.

Plowing must be begun as soon as the frost is out of the ground, and with this real commencement of the farming season, the hard work begins. They have been resting all winter to prepare for it! All through the lovely month of June they expend their time plowing corn. Ask a farmer of the beauties of a pastoral life about half an hour before noon, while he is navigating through a forty-acre field, and he will get mad; and if you tell him the sun is nearer in winter than in summer, he will find it hard to keep his temper. He knows how near the sun is in June while playing croquet with a hoe handle and weeds. The potato bug has

added another pleasing addition to the raising of potatoes, for the farmer has an opportunity to amuse himself sprinkling them with Paris green and water. Then comes haying; now he works about eighteen hours a day, and if he discovers a bumblebee's nest and is made the recipient of their practical stings, though he can't find time for revenge, he gives some beautiful sentiments on the spur of the moment. After haying, harvesting, then digging potatoes; then the corn is to husk, and the cold weather comes again. Oh, yes, there is lots of fun farming.

M. T. M.

AT HOME.

In an interesting editorial on that much worn subject, "Why Young Men Leave the Farm" the *Central Christian Advocate* says:

It is not strange that so many young men are deserting the farm; the only wonder is that so many yet remain. How many farmers are there who eat in their dining rooms when they do not have company; who always use the best they have for their own family; who plant flowers about their houses; who buy games for their children; who cultivate social life to the full extent of their opportunities; who do not run down farming as an occupation when seasons are unfavorable; who put on clean clothes after the day's work and pays special attention to the niceties of manner and appearance which give charm to family life; who purchase books and family papers; who plan and execute pleasant surprises for the home circle; who encourage their sons to make a scientific study of farming; who give them a proprietary interest in the farm, and an opportunity now and then to see a little of the world? Is it to be wondered at that when these things are considered of but little moment young men turn with longing eyes to the cities?

A BLOOMLESS, SEEDLESS, CORELESS APPLE.

I am not a nurseryman, but have made some little examination in fruits. I have an apple tree of the above description—a stray seedling set out in our own orchard when young, and after it began to grow it appeared to be a wonder. The tree originated with us in 1866 of unknown parentage. Its habit of growth is rather slow. It has heavy, round, spreading boughs. The young apple grows out in bunches unlike any other apple I ever saw. It never has had a blossom on it. It bears full every year a fine, red winter apple.

The flesh of this apple is of a deep, rich, orange color; of wonderfully fine aromatic flavor, and it is solid throughout, without seed or core. I do not know whether it will duplicate itself, but reason teaches us it may. If I understood grafting I would endeavor to propagate this singular apple. Many have come miles to see this tree at blooming time. Some have disputed this representation, but it is true.

Any and all skeptics can consult R. M. Ratcliff, D. D., or any one else here. The cause of the phenomenon I know not.

G. W. ROBINETTE.

FLAG POND, VA.

AGRICULTURAL EXPERIMENT STATIONS,

The following is a list of the State Agricultural stations:

STATE.	PLACE.
Alabama.	Auburn.
Arkansas.	Fayetteville.
California.	Berkeley.
Colorado.	Ft. Collins.

Connecticut.	New Haven.
Dakota.	Brookings.
Delaware.	Newark.
Florida.	Lake City.
Georgia.	Athens.
Illinois.	Champaign.
Indiana.	Lafayette.
Iowa.	Ames.
Kansas.	Manhattan.
Kentucky.	Lexington.
Louisiana.	Baton Rouge.
Maine.	Orono.
Maryland.	Agricultural College.
Massachusetts.	Amherst.
Michigan.	Agricultural College.
Minnesota.	St. Anthony Park.
Mississippi.	Agricultural College.
Missouri.	Columbia.
Nebraska.	Lincoln.
Nevada.	Reno.
New Hampshire..	Hanover.
New York.	New Brunswick.
New York.	Ithaca,
New York.	Geneva.
North Carolina.	Raleigh.
Ohio.	Columbus.
Oregon.	Corvalis.
Pennsylvania.	State College, Center Co.
Rhode Island.	Kingston.
South Carolina.	Columbia.
Tennessee.	Knoxville.
Texas.	College Station.
Vermont.	Burlington.
Virginia.	Blacksburg.
W. Virginia.	Morganston.
Wisconsin.	Madison.

Farmers in any state can obtain the reports and bulletins of their own station free of charge upon application. The reports and bulletins from other states are sometimes sent free, but when the applications becomes so numerous as to be a tax upon the income of the station, a small

charge is made, varying from forty cents to fifty cents per year. The exact terms upon which a station in another state will furnish bulletins may be ascertained by a letter addressed "Experiment Station," at the postoffice here given, for the state named.

AGRICULTURAL EDUCATION.

Editors Country Gentleman:

I was greatly surprised to read the article in *Country Gentleman* for November 15, from a "Teacher of Agriculture," in reference to manual training at agricultural colleges. It is greatly to be regretted that "Teacher of Agriculture" did not sign his name. The writer says: "The teaching of practical farm work at a college or school of agriculture is, and of necessity must be, a farce and a humbug." Let me say in reply, that this college, the Michigan Agricultural, has now existed for thirty years. Manual labor has been performed for the whole time, and to-day no feature of the college is held in higher regard, I believe, by the faculty, Board of Control, and by graduates, than this one of manual labor. And when the labor departments have been most successfully managed, no feature has been more popular with the students. These facts certainly do not smack of "farce and absurdity." The writer says, the student goes to pursue a course in scientific agriculture, and acquire an education that will better fit him to conduct farm operations. We, who teach science in these days, would utterly rebel were we required to give up our laboratory practice. We demand, that our students shall touch and handle the things about which we lecture. This laboratory work is what makes live, wide-awake, enthusiastic students. Agriculture takes in all science, and has a literature rich and comprehensive, and its manual operations are very varied and complex. How much more then does the teacher of agriculture need a laboratory—his broad fields—to illustrate, vivify, and make interesting what he teaches!

The next sentence contains a confession from "Teacher of Agriculture," which is very significant. "The chances are that the student

knows more about the manual operations of farm work than the professor of agriculture." Just here lies the difficulty. Students very soon "size up" their teacher, and no failing are they so slow to condone as incompetency. It is not difficult to see how any department in a college will prove a "farce and a humbug," when its professor knows less than his students. The fact is, the professor in Agriculture, like the professor in geology, should know well all the sciences. And more, he should know thoroughly all the most approved methods of farm management and manipulation, and should be a mechanical genius, so as to readily see the principles underlying farm machinery. Such an one will have no trouble to interest his pupils.

The writer quoted speaks of the time spent in manual operations as wasted. We have had professors at this college from many of the colleges of the country, and they invariably report as good class-room work here as anywhere; yet our students are employed in manual labor three hours a day. The fact is, the students need that much exercise. Here all get it. In other schools some get none, while others engage in athletic sports and often work so hard as to utterly ruin their physical strength. Is it not better for the student to have this regular employment, and to work off the greater part of the surplus physical energy in some wholesome, useful labor? We have found it so here decidedly.

The writer says: "College catalogues are full of nonsense about dignifying labor." I have yet to see such a catalogue; yet I supposed I was pretty familiar with these documents. But why "nonsense?" I say, it is manly to labor with the hands, as well as with the brain. All useful labor is praiseworthy; but let a student work four years during the most impressible part of his life solely with his brain, with not a stroke of manual labor, and it is nonsense to ever expect him to take to it naturally after graduating.

Fifty per cent. of our graduates have gone into manual labor pursuits—mostly on to farms. Why this unique experience? I believe, it comes from our labor system; in truth, I feel sure it is this. I say, dignify both brain labor and hand labor. Those colleges that regard the one only, have not made farmers.

The writer says, that the manual dexterity is easily gained. Then why does the professor remain more ignorant than the green freshman? But I think he is wrong. There are manual methods and manual methods. Every farm community shows most graphically the need of better training among our farmers in just this matter of manual dexterity.

It is stated, again, that hard manual labor in the afternoon is poor preparation for study at night. Our experience contradicts this in toto.

Our students are unanimous in the opinion that the work is no hindrance to study. The exercise is no more than good, vigorous health, and the best mental effort requires. Our students are not only exceptionally good in the class-room, but they are everywhere praised for their vigorous physiques. We believe, our labor system deserves much of the credit.

That student labor can be made in the highest sense productive and economical no one argues. Not, however, because the students regard it as "a farce;" but to have a large number of laborers for three hours per day, and many of them persons who know nothing of farm work, is not just the arrangement one would desire, if money alone was the object. But colleges are not to make money, they are to develop strong, disciplined men. And for agricultural colleges to attract students, and send their graduates on to farms, they must, as experience has fully proved, use manual labor as one important factor of their work. Our critic further asserts, that during the summer months, when all the studies in natural science can be best prosecuted and farm management is at its height, these teachers drop their work for two months' holiday, because other institutions do so. That is just what we do not do. We think the summer months our harvest time, and we all stick to the plow-handles. Nor do our students complain, but give as good lessons even in dog-days as at any time. I can hardly see how an agricultural college can hope for success, except as it has its long vacation in winter, when nature, with which agriculture has to do, is at rest. Surely in our northern states any other plan would seem anomalous and absurd. The winter vacation also gives the poor student opportunity to teach, and thus some of our brightest and most promising students are enabled to finish the course. I quite agree with our critic in his conclusions under this head. Summer vacations at an agricultural college do seem "utterly ridiculous." As well might the farmer take a vacation just at the dawn of the harvest season. But why "ridiculous," unless the farm and garden are to be made adjuncts in the work of teaching?

It is farther stated that farmers' sons avoid the agricultural colleges, "because a young man seeking an education seeks to be more than a hewer of wood and a drawer of water, and because they perceive that this demagogical cry about dignifying labor is really a belittling of mental culture." Surely our critic should investigate before he writes. Farmers' sons do not avoid real agricultural colleges. For years the burden of our cry has been "where can we put our students?" True, not all of these are farmers' sons, but a large majority are. I think the same is true of Kansas, Mississippi, Iowa and other colleges that are truly ag-

ricultural. The colleges that beg in vain for agricultural students are those which have no manual labor. This is a fact which investigation will demonstrate to any person. I believe the "demagogical cry" is all imaginary; at least, I have been very deeply interested in agricultural colleges for more than twenty-five years, and I have never heard it. I am pained to believe that too many regard hand labor "as really a belittling of mental culture." It is to be regretted that there are any such. I think they are out of place on American soil.

In reply to the critic's closing paragraph about manual labor being a "travesty on work, and an absolute waste of valuable time," I can only say we find the reverse to be true. Our college has always insisted on the manual labor feature. To-day our faculty and graduates are as one man in speaking its praise. We believe it is this that has filled our halls with exceptionally earnest capable young men; that has made our college the pride of the State Grange and farmers of the state; that has sent such a surprisingly large proportion of its graduates on to farms, and has been more influential than any other one thing in determining the future of the large number of our graduates that are now acting as professors in agricultural colleges, and that are employed in the several experimental stations. Twenty-eight of our graduates are professors in agricultural colleges or state universities, twenty-three are members of experimental stations, and five are directors of such stations; while two are presidents of colleges. Surely this is not a bad showing for a college that graduated its first class in 1861. This manual labor reminds us of Grant's whisky which Lincoln wished more of his generals would drink.

A. J. COOK.

Michigan Ag'l College.

UTILITY OF EXHIBITION OF FRUITS, CEREALS, ETC.

Agricultural fairs, horticultural fairs, stock shows, etc., when well done and well patronized, have in them a value not usually appreciated by the masses, nor easily estimated by a careful observer. Not valuable mainly to stockholders or managers of such "Fair Associations"—a large proportion are not remunerative, financially, as an enterprise, nor even self-sustaining always.

THE PAY IS TO PATRONS.

Citizens of a good county do not estimate the value of their annual fair by the aggregate amount of liberal premiums awarded them. The benefits come as of "bread cast upon the waters," to be gathered afterward. At these fairs the best animals of improved breeds of sheep, cattle, horses, etc., are seen by large numbers of farmers, who naturally compare their common plug horses with finer, better animals, and resolve to make improvement in their stables; and so of all stock shown, nothing is so convincing as to plainly see the difference.

HOW IT WORKS.

Where a good fair or stock show is run a few years, the result will be observed all over the county in the improving character of pigs, poultry, sheep, cattle and horses. Scrub cows are abandoned for better milkers, the farmers' improved teams show the blood of a better breed. He caught it at the fair, is "breeding" up all his stock and finds it pays largely. So of the field products, by comparison we learn which is the best corn, wheat, oats or other grains, find thus the earliest, largest and best potatoes and other vegetables, and at once determine to have the best varieties of all these and to practice the best methods to procure largest yields. Thus the farmer finds the value of his county fair in his fields in larger crops of better grains, grasses and other products.

These agricultural gatherings yield

AN ANNUAL SOCIAL VALUE,

that is also above the size of the average premium. Horticulturists find the exhibition of their attractive, beautiful fruits, one of the most efficient factors in multiplying the number of orchards and fruit growers in the country. A well handled, good display of perfect, well colored fruits is most enthusing—an appeal, irresistible to the good sense of hundreds, who, standing by such display tables, determine to plant an orchard and grow similar fruit.

In such exhibits, experienced fruit men are able to compare many varieties of the same kind, and are aided in choosing, more wisely, the best to plant.

BEGINNERS IN THE FRUIT BUSINESS

are in some danger of being misled, by a grand display of a hundred varieties of apples or more, into a desire to plant them all, or as many

as possible, and specially the very largest specimens impress them, so that lists are made on the spot, of the names of the "big ones," and they will in this way be led to plant most of such as pay small profit; for it is a fact that our largest show apples will not yield as much profit as will varieties of the small or medium size. We think

THE PRIME UTILITY

or value of an exhibition of apples or other fruits does not consist in the largest possible display of all the varieties attainable. But a show of select varieties of the most profitable to grow, it would seem, would constitute the best object lesson.

ENCOURAGE THE BEST.

We have often thought fair associations, horticultural societies, etc., should not encourage multiplicity of varieties (many of them without merit) by offering their largest premiums for the largest collection, but instead let it be a liberal premium for the best collection for certain purposes and so of single plates, offering premiums for only the meritorious, and discouraging all shy bearers, poor quality, bad keepers, etc.

The value of these fruit shows is apparent in the increase and improvement of fruits in counties where samples of best fruits are exhibited annually, or even monthly, during the faithful work of horticultural societies year after year.

We hope to see fruit show, stock shows and agricultural fairs still patronized more all over Missouri, and so well done as to develop and distribute their chief good to the largest possible number.

JOT.

THE WONDERFUL CROP OF MISSOURI APPLES.

THE VARIETIES THAT ARE FAVORITES.

The apple crop of North Missouri this year, exceeds that of any other season in the memory of the oldest resident, or in the history of the state. The season was a propitious one, and as a result, the magnificent orchards for which this Providence-favored section is noted, are now presenting busy scenes. The large trees are almost borne to the earth by their weight of fruit, and the quality of the product is pronounced unexcelled. Contrary to the usual order of things, the beautiful crop has in no way diminished the value of the fruit on the market for every apple that has been grown in North Missouri this summer now commands a sale and at a price not to be sneezed at.

In Mexico there have established for the season's business, commission merchants, who buy all the apples of the fall and winter varieties raised for miles around. Gathered in the streets about their places of business, from an early hour until late in the afternoon, can be seen the wagons of farmers, heavily loaded with apples. So great is the supply that large forces of men are necessary to receive all of the fruit for sale, and as fast as a wagon bed is unfreighted, another load slips into its place. And so for days and days this traffic has been going on and for weeks it will not end.

A representative of the *Ledger* dropped in on one of these merchants this morning and when the gentleman found a moment of leisure he was asked to tell something of his business. He kindly consented and said :

"This business is not exactly a new one, but in its present form is quite novel. I have bought apples and shipped them from this point, season after season for many years, but I cannot remember any time that the crop was so good as now. You see the extent of the business this morning and we have only started, I may

say. From now until the close of the season I expect to barrel and ship nearly six hundred bushels of apples daily. I keep a large force of men at work here unloading from the wagons, sorting and barreling the fruit. All apples with the slightest indication of unsoundness, are thrown aside and disposed of at once to the local trade, before rot sets in. They are good for present consumption, but might ruin a whole shipment by being allowed to remain with the sound fruit. Besides my force here at the house, I have a number of men at work in the country, who pick, sort and barrel the apples in the orchard."

"What are the favorite varieties and what prices do they command?"

"These," answered the merchant, pointing to a barrel of deep, rich, red apples, "are known as the Ben Davis variety. They seem to be the most plentiful, but the demand for them, even this good season, is greater than the supply. The Ben Davis is a fine winter apple and a good cooker. The Willow Twig, an apple larger than the Ben Davis, is also much in favor. It is green, with a tinge of red on the side. The Winesap is a small, dark, red apple, with a white, juicy meat and has many admirers. The Roman Beauty looks like the Willow Twig, but is a large variety and equally good. These four varieties are most sought after, but when the old Missouri Geneting commence to come in the demand for them will exceed that of all the other varieties I have named combined. Greenings and Pippins are good fall varieties, but cannot be classed as standard. I send all my apples direct to Cedar Rapids, Iowa, but some of the dealers in this section ship to St. Louis and Chicago. We are paying 25 to 40 cents for apples and are buying all we can get. If you want to know anything more about apples, come around when I am not so busy and I will tell you something about grafting, orchard culture and the apple business in general."

The reporter thanked the gentleman and left the place loaded down with juicy Winesaps, delicious Rambos and a profusion of Pippins, Willow Twigs and Roman Beauties.—*Mexico (Mo.) Ledger.*

OUTCOME OF THE FRUIT SHOW.

It would not surprise us at all, indeed it is one of the things we confidently expect and predict, that consequent upon the great show of fruit now on exhibition at the St. Louis Exposition, within five years, trains of special cars will be loaded in Southern Missouri and the fruit go direct to the sea-board, and thence to Europe in the original packages. We have demonstrated beyond the shadow of a doubt that Missouri is in the centre of the "fruit belt," that here soil and climate are unsurpassed, and that in no other state can the same quantity and quality be periodically produced. These incontrovertible facts will add to the number and size of our commercial orchards, give zest to the genius and the enterprise of the orchardist in competing for the production of the best, and create a demand for our fruit from all parts of our own country and from Europe.

This is no wild fancy of a visionary brain. It is a cold statement based upon bare facts. The evidence is here before our eyes, and seeing is believing.

Here we have five hundred and twenty varieties of apples shown on three thousand different plates, the show kept up forty days in succession, and yet two-thirds of the state are not represented. It is mainly the result of individual enterprise in which not more than a dozen local horticultural societies take part. The state gives it no aid and the railroads no help as they do in Arkansas and Kansas; it is therefore the outcome of the energy and the enterprise of earnest men who, knowing their business, have the most implicit confidence in the result when opportunity is afforded them of open competition with the world.

Missouri horticulturists owe a debt of gratitude to J. C. Evans and L. A. Goodman, president and secretary, respectively, of the State Horticultural Society, for the long and arduous work involved in bringing the show to perfection, and the self-denying manner in which they have personally superintended all the arrangements and remained with it from the beginning. To D. S. Holman, the efficient treasurer, who also has personally remained with and assisted them, similar credit is due. There are other enterprising men whose names might be mentioned in this connection, men who assisted in furnishing the fruit, in collecting, picking and shipping it, and at times being present here spending time

and money in perfecting the great work, but our space will not now permit their enumeration. They shall not go unnoticed, however. The names of all who have contributed to the success of this enterprise must be placed upon record that when the first train of refrigerator cars loaded with our choicest fruits pulls out of South Missouri before the year 1895 they may be called together to witness the grand outcome of the missionary work they are doing to-day.

* We have said in the past that Missouri had room for hundreds of thousands of farmers from other states less favorably situated, but she does not need them half as badly as they need her. Within the years past millions of well-to-do, intelligent men have passed by and through the state who might better far have stayed here; they have gone farther and fared worse; they are now begging their way back to a decent soil and an habitable climate.—*Rural World.*

PRACTICAL AND POETICAL BIRD LIFE.

BY MARY HOHLINGER, ROSEDALE, KAS.

[Read before the August meeting of the Missouri Valley Horticultural Society.]

As students of everything pertaining to successful fruit growing, the members of this society have studied carefully the food and habits of our feathered songsters in order to determine their exact relation to horticulture. Yet I wonder how many of us have looked beyond their utility, and the pleasure which they give us, to think that these same musicians are of more than passing interest to the people far removed from vineyards and cherry orchards.

We have learned that besides being on the farm as consumers of insects, caterpillars and surplus small fruits, the birds have another and loftier mission which they fulfill in the grand concerts with which they

greet the world every summer's morning, and later by the evening vespers which they bring to the tired farmer's door. But have we ever paused in an interlude of the singing to think that there are others whose life and whose work would be incomplete without these same birds? For what, indeed, would poetry be without the birds? What could the poet use as a substitute were these aerial singers to be suddenly wiped out of existence?

Resting under the friendly shade of a stout-hearted tree, you have looked out upon the surrounding summer landscape. You have noted the thriving field, the ripening grain, the perfumed flowers, and you have noted how peaceful and quiet was all summer life about you, not a breath stirring, not even a bird singing to break the stillness—not a bird singing? Oh yes! Now that you begin to listen for them there are one, two and three chirping cheerily from an adjacent grove, seemingly not in the least offended because you overlooked them before.

In the same cheery way the bird sings in poetry. You may not notice him but you would miss him were he not there. Never yet has there been produced a true and beautiful word picture of a summer scene but the bird and his singing have been lovingly noted. Thus Longfellow in his poem "Autumn" makes mention of them in this way:

"Through the trees
A golden robin moves. The purple finch,
That on wild cherry and red cedar feeds,
A winter bird comes with its plaintive whistle
And pecks by the witch hazel while aloud
From cottage roofs the warbling blue bird sings."

Lowell, in painting his beautiful picture of autumn in "An Indian Summer Reverie," amid descriptions of hills, valleys, trees and sky brings in these suggestive lines:

"Far distant sounds the hidden chickadee,
"The sobered robin, hunger silent now,
Seeks cedar berries blue, his autumn cheer."

Not even disdaining to mention a less romantic bird he writes of
"The cock's shrill trump that tells of scattered corn,
Passed breezily on by all his flapping mates."

Farther on his eyes are raised above the frost tinted trees and he notes:

"Silently overhead the hen hawk sails,
With watchful measuring eye and far his quarry waits."

Does not even this simple line,

“A single crow a single caw lets fall.”

Suggest the early autumn day in all its peace and beauty?

Not willing at any time to slight his favorite of all his feathered friends he adds,

“Meanwhile that devil-may-care, the bobolink,
Remembering duty in mid quaver stops,
Just ere he sweeps o'er rapture's tremulous brink,
And twixt the mirrows most demurely drops,
A decorous bird of business, who provides
For his brown mate and fledglings six besides,
And looks from right to left, a farmer mid his crops.”

Nor is the picture yet complete without the dallying plough boy.

“Who, with each sense shut fast except the eye,
Creeps close and scares the jay he hoped to shoot.”

The poet no more than the fruit grower is averse to showing his partiality for a particular bird, nor does he hesitate to make special mention of the birds he loves. With a few exceptions each fluttering beauty has a friend who loves him best, to whom he sings his sweetest songs and who in return, pens the happiest thoughts when he is the subject.

First of all in the springtime comes the robin, called “the forerunner of the spring” the same robin-red-breast who

“Sings so sweetly in the falling of the year”

and with its glad, clear carol bids good cheer to all the fresh young life about him. There is a pretty story told in rhyme by Whittier which tells that this merciful bird carries dew in its tiny bill to drop on the sad souls tortured in the “fiery-pit.”

“You can see the marks on his red-breast still,
Of the fires that scorch as he drops it in.”

Then the poet, always ready to draw a lesson for himself adds:

“Each good thought is a drop wherewith
To cool and lessen the fire of hell.”

Only a few days later comes the bluebird and begins “prophesying spring,” his mellow, sweet toned warble making him a general favorite in the United States. He is accused of being vain of the rich sky-blue coat which he wears, but I think he is prouder of the six pale blue eggs which his busy little wife cares for so tenderly.

A little later on other birds fully as beautiful and with quite as good voices, though these receive the gladdest welcome because the earliest visitors. Among them is the Baltimore oriole whom some one has prettily called a "glance of summer fire." With his brilliant plumage, agreeable song and active habits he soon makes himself at home in our hearts as well as in our orchards. He was christened Baltimore, we are told, from the resemblance of his plumage to livery of Lord Baltimore.

The lark, for many years a great favorite in Europe, has endeared himself to us since he has taken out his naturalization papers here. He has a habit of sending forth his sweetest song while ascending to a great height in clear weather. It is this habit which has caused the poet always to speak of him as singing at "Heaven's gate."

The blue jay with all his vaunted beauty has hardly a friend among us all. The farmer denounces him as a plunderer and murderer. Those not acquainted with his domestic habits find the keynote to his character in his sharp, screaming voice. Few, indeed, are the rhymers who sing his praises.

The cat bird and his cousin, the mocking bird, are said to be among the best singers in America, especially the latter, whose reputation is world wide.

The cuckoo, the "merry brown thrush," the brave little chickadee and the Quaker wren are all modest, well behaved, sprightly birds, going about their daily tasks with such a cheerful, contented mien which many of their human friends would do well to copy.

The crow, the blackbird and even the despised hawk have their friends among human kind. The latter is defended by Mr. Warner who mentions only two varieties out of eight which he considers detrimental to the farmer's interests, the others feeding mostly on insects and small rodents.

The blackbird takes it upon himself to assist the crow in superintending the farmer's corn fields, but both birds, it is thought, eat very little grain till it has ripened in the fall when they have earned a share by protecting it from insects and worms through the long summer months.

Jim Crow derives his surname from his cry of "caw," though just how it has been so perverted we can hardly tell. However, his voice is less harsh here than across the Atlantic, where he was named years ago, and this undoubtedly makes a difference.

Hated and persecuted for his unappreciated services in the corn field, he has the further misfortune to be the emblem of contention.

Many are the disputes settled only by the customary "picking a crow."

As an expression of humiliation eating crow has about the same meaning as eating humble pie. The significance is said to have had its origin during the civil war, coming about in this way. A private in a certain Pennsylvania regiment got permission to go hunting. During the day he was unfortunate enough to shoot a pet crow belonging to a planter who came in sight just as the shot was fired. Seizing the gun which the unlucky hunter had rested against a tree he thundered, "You will eat that crow or die." There being no escape the soldier began sulkily to devour his unpalatable capture. When he had eaten a part the planter relenting said: "You've done pretty well; here, take your gun and get off right smart." The soldier no sooner had the gun in his own hands than he turned it suddenly upon the late victor, exclaiming, "Now you eat the rest of that crow or I'll shoot you on the spot."

Astonished and helpless the planter meekly obeyed. Visiting the camp a few days later, he was politely greeted by the smiling soldier. "Do you know him?" inquired an officer of his visitor. "O yes," was the pleasant reply, "we dined together last week."

The well-known English sparrow, once courted in all parts of the country is now as diligently persecuted. It is admitted that he has sanitary habits, that he is an invaluable assistant in cleaning the city streets, but on the other hand dark and dreadful tales are told of him—how nothing prevents his inroads on seeds and grain, how he torments, whips and even kills the sweeter song birds, how he appropriates everything for his own selfish wants. From many quarters the harsh decision comes, "The sparrow must go"—but the sparrow will not go.

Poor little sparrow! Plucky, sociable, restless, troublesome little sparrow. Could you but be contented with a share of this world's goods; could you but learn to control your temper better, could you only learn to be more generous, more polite in your dealings with men and birds you would save yourself a vast amount of trouble, as many a larger biped would do.

Blitheest and most of all our song birds is the bobolink, who comes in the spring from the West Indies and begins singing with such volatility and hilarity that the listener cannot fail to find the spring enthusiasm throbbing in his own veins. "He chants out," says Wilson, "such a jingling medley of short, variable notes, uttered with such seeming confusion and rapidity that it seems as if half a dozen birds of different

kinds were singing all at once." Perhaps the old nursery ditty expresses it quite as well. It runs in this wise :

"Bobolink, 'olink, 'olink,
One would think so fast you gabble,
That you never stop to think,
Bobolink, 'olink, 'olink,
No one thinks you're any wiser
Though your tongue keeps running so."

Whittier calls the bobolink the

"Jolliest of our birds of singing."

Lowell tells of his love for June,

"The pearl of the New England year,"

and his feathered friend, in these words:

"A week ago the sparrow was divine,
The bluebird, shifting his light load of song
From post to post along the cheerless fence,
Was as a rhymer ere the post came.

The bobolink has come, and like the soul
Of the sweet season vocal in a bird,
Gurgles in ecstasy we know not what
*Save June! Dear June! Now God be praised
for June.*"

Bryant has written a poem entitled "Robert of Lincoln," so gay and rollicking that we almost hear the merry bird notes in reading those of the poet. The history of the bird's life through an entire summer is given in the poem beginning:

"Merrily swinging on brier and weed,
Near to the nest of his little dame,
Over the mountain side or mead,
Robert of Lincoln is telling his name."

But the last stanza begins thus:

"Summer wanes; the children are grown;
Fun and frolic no more he knows;
Robert of Lincoln's a humdrum crone."

The poet tells the truth. The bobolink sings constantly through the months of May and June, when he stops sowing his wild oats and begins life in earnest. The gay bridegroom of the springtime becomes

the steady man of business, working hard for the support of his large family. His bright black coat is exchanged for a plian brown one similar to that worn by Mr. Bobolink. In late autumn he flies south to the rice fields of South Carolina, where he is known as the rice bird. Nothing could be more commonplace than his life here. He gorges day after day on the plentiful rice until he is finally captured and served on the planter's table, making as nice a dish as if the ambition of his life time had been to grow fat and be eaten.

All these and many more have been sung again and again by the hearts that loved them. Many poems have been written in honor of a particular bird, but poets generally prefer to love them all and sing of them all simply as birds. Beautiful are some of the legends connected with them several of which are told by Longfellow such as "The Emperor's Bird Nest," Walter Von Der Vogelweid and especially "The Birds of Kenilworth," in which are given the mournful results of a willful bird massacre.

Happy little birds! So long as they live and sing they will be loved—loved because, being free and innocent, they bring good cheer in our gayer hours, but better still they will be loved because being as bright and beautiful as when they came from the hands of their Maker they give comfort and encouragement to the sad soul trying to look upward.

A FEW ITEMS FOR SETTLERS.

THE RAILROADS OF THE STATE.

Our state is crossed in nearly all directions by the railroads, and we have abundance of cheap lands all over the state, well adapted to agricultural and horticultural products. Why persons should seek the vast plains of the west, or the hot regions of the south, or the cold regions of the north, when there is an abundance of land in the best climate and the best state of the union, is beyond my comprehension. A state supplied with abundance of water, wood, coal, iron, stone, zinc, lead, good soil and climate, surpassed by no other state and equaled by none ; where are plenty of rains and sunshine, moderate climate, it is a strange fact that so many thousands of our people pass directly through. A state with live, energetic, pushing cities, good markets, quick transportation, an abundance of railroads, what more could the settler want ?

We present a map of the state with this report and if you will but study it and read the advantages, I am sure you will stop on your way to the west and settle with us.

We present maps of a few of our railroads, showing their lines and the way of reaching certain portions of the state, and with these before you and also the map of the state, you can see and understand the location and adaptability of our land for certain products.

The description given by some of our members of the line of the railroads will also assist you.

We do this in order to assist the new-comers in their knowledge of the state and help them locate in our midst.

L. A. GOODMAN.

The following railroads pass through the state and through the following counties. There is scarcely a county or portion of the state on the line of these railroads but what has good, close, quick communication with the outer world—north, south, east and west.

You will see from the map of Missouri what portion of the state these counties cover, and will know where and how to reach them; and when you realize that nearly the whole state is well adapted to fruit-growing, you have only to select your location and go at it on our cheap lands.

List of counties through which the following railroads pass:

C. & ALTON—Jackson, Lafayette, Saline, Howard, Randolph, Boone, Audrain, Pike.

C., M. & ST. PAUL—Jackson, Clay, Ray Caldwell, Livingston, Grundy, Sullivan, Putnam.

SANTA FE—Jackson, Ray, Carroll, Chariton, Clinton, Buchanan, Macon, Adair.

C., R. I. & PACIFIC—Jackson, Platte, Buchanan, Clinton, De Kalb Daviess, Grundy, Mercer.

FRISCO—St. Louis, Franklin, Crawford, Dent, Phelps, Pulaski, Laclede, Webster, Greene, Christian, Polk, Lawrence, Barry, Newton, Jasper.

FT. SCOTT, SPRINGFIELD & MEMPHIS—Jackson, Cass, Henry, St. Clair, Polk, Greene, Dade, Barton, Webster, Wright, Texas, Howell, Oregon, Shannon, Carter.

MISSOURI PACIFIC—St. Louis, Franklin, Gasconade, Osage, Cole, Moniteau, Miller, Morgan, Cooper, Pettis, Benton, Saline, LaFayette, Jackson, Johnson, Cass, Bates, Vernon, Barton, Jasper.

IRON MOUNTAIN—St. Louis, Jefferson, Washington, St. Francois, Iron, Wayne, Butler, Stoddard, New Madrid, Mississippi, Scott, Cape Girardeau, Bollinger, Madison.

M., K. & T.—Ralls, Monroe, Randolph, Howard, Cooper, Pettis, Henry, St. Clair, Vernon, Barton.

WABASH—St. Louis, St. Charles, Warren, Montgomery, Audrain, Boone, Randolph, Macon, Adair, Schuyler, Chariton, Carroll, Livingston, Daviess, Ray, Clay, Jackson.

BURLINGTON—St. Louis, St. Charles, Lincoln, Pike, Ralls, Marion, Lewis, Clarke, Shelby, Macon, Linn, Sullivan, Putnam, Chariton, Carroll, Livingston, Caldwell, Clinton, Clay, Jackson, Platte, Buchanan, Andrew, Holt, Atchison, Nodaway, De Kalb, Gentry, Harrison.

FRUIT RESOURCES OF MISSOURI.

The following excellent paper was read at the meeting of the State Board of Agriculture in Lebanon last Friday, December 21st, by D. S. Holman, of Springfield, Missouri, Treasurer of the State Horticultural Society:

MR. PRESIDENT:—By request I offer a short paper on a subject worthy of more time and better preparation than I have been able to give to it.

Missouri, Sir, needs no eulogy from me, nor exaggerated statements from any. Her diversified surface, her soil and its products, tell plainly and truthfully of immense resources, and very many of them. If we were considering them all now, we would find Missouri wonderfully made, possessing in all her parts a wealth of values inexhaustible. God must have looked on Missouri when He said "It is good, very good." Her minerals, her cereals; her grasses and her fruits present the same fact. She is adapted to agriculture and especially so to horticulture. The fruit resources of Missouri were very slowly developed in the years of the country's settlement. Now it is being done rapidly and satisfactorily. The annual fruit crop, when ripening in all its crimson and golden beauty upon the trees, is very suggestive to the observing traveler, of Missouri's fruit resources. Proof of this fact is also found in packing houses and upon the railroads, where our fruits are handled and shipped from orchards all over the state, and from the fruit market reports in the south and west where Missouri fruits are largely sold.

Nothing proclaims this fact more beautifully than fruit exhibitions by horticultural or other societies at their meetings. In the last few days, in the city of Nevada, at the Missouri State Horticultural Society's annual meeting, there were, for public inspection spread four very long tables of beautiful fruits, representing the fruit growths of the state most beautifully.

Allow me to refer to the grand show of Missouri fruits in the St. Louis Exposition last fall under the supervision and much labor of the Missouri Horticultural Society. Nothing so convincing could have been said—and no one could have said it so beautifully as did the fruits themselves—that Missouri lands were fruit lands, and that the capabilities of the whole state are immense.

To determine the true character of Missouri as a fruit producing state, it should be considered by districts. Were an observing stranger to cross the northwestern portion of the state at fruit harvest he would conclude naturally that Missouri produced fine apples, whereas, if he had instead crossed the Ozark mountain at its southeastern slope, he would have called Missouri a peach orchard, and in the mineral belt, where iron predominates, he would find the land for pears and grapes and the whole list of berries or small fruits, all which can be grown largely and profitably in Missouri, if classified as nature has classified the capabilities or adaptation of altitude, soils, slopes or exposures, etc., and plant accordingly. If we would grow the peach largely for profit, then we may find success in the peach belt covering the hill country of South and Southeast Missouri—the Ozarks—especially their southern and southeastern slope. Here is just sand enough in the soil to make both cultivation and success with small fruits easy. Every county in the state will produce fine apples—some better than others however. Larger and heavier on the deep, moist soil. The highest colored and best quality possessing most saccharine matter are found on lands of best altitude and nearest the sun with no malaria.

I doubt if another state in the whole country can grow so many, and so well, the fruits which succeed in Missouri. The adaptation to the apple and other fruits is no longer a question in Missouri, but the extent of the fruit resources of Missouri is a problem. Already millions of bushels of Missouri apples are annually grown and there are millions of acres of her best fruit lands unsubdued—in brush, woods, vines, briars, and grass to-day—cheap lands, too.

I have no fruit lands to sell, sir, and no axe to grind when I call attention to the Ozark plateau of many miles in length and the timbered hills on the long slope on both sides of this plateau where small money, large muscle, a good will and an active brain would achieve an annual success, when richer bottom lands, valley or prairie, better for agriculture, would not, from fogs and frosts, give crops of fruits so sweet nor so surely. Similar rough lands in other portions of the state, ignored because rough and hilly, will yet be planted to fruit and found the best.

It is but a question of time—a short time—when Missouri must stand in the front as a fruit state. The result of scientific and practical experiments being made and yet more and more to be made at Columbia, will hasten such results. The faithful work of the Missouri Horticultural Society, with auxiliary societies in the counties, will help to solve the problem of Missouri's fruit resources and help to fulfill the prophecy in a few years just made for Missouri.

L. A. Goodman:

It seems to me a little difficult to appreciate your request for a report on the adaptability of any part of our state to fruit growing; it should be self-evident to any casual observer. Nevertheless, we can hear men in any part of it complaining of want of success. Whenever a short crop is realized the country or the climate is blamed. Such men would sing the same old tune anywhere they might be located, and would plant still less if they knew such complaints would be frowned down by all their neighbors. Hence, we find the least interest in fruit growing in the most favored localities, excepting some limited localities where commercial growers have demonstrated the wisdom of planting extensively. Then everybody will plant for an immediate fortune, taking but little further care of it, and when an occasional crop year occurs, like the last, the markets are soon glutted and broke down with second and third grade stuff.

But this need not be any discouragement to planting by considerate men. The market for potatoes is about as demoralized now as that of apples, while in a few previous years there have been millions of bushels imported. Skillful farmers are said to make more money in a hard crop year than when crops grow almost of themselves. I never expect to see even half the orchards taken reasonable care of, but I expect to see, as I have often seen before, the orchard and fruit garden pay a larger dividend than any similar part of the farm.

Perhaps the main question you want answered from this part of the state is: What has been the effect of recent test winters on our orchards? And I am free to confess that where trees were in thrifty growing condition in the fall of 1884, they were all more or less damaged that winter, and a small proportion permanently injured. The far larger portion seem to have entirely overcome the injury, and made a splendid growth the last two years, especially where they were not too heavily sod-bound. The older orchards that were uniformly in this sod-bound condition during those test winters, seemed to me not to have suffered nearly so much from the sudden cold, being more in a dormant state when this occurred, and even they seem to have recovered some thriftness of late.

In obedience to your hint of brevity, I would say, in short, that if I were prospecting for a location now for fruit-growing, I should not care to go much further north, nor would I sacrifice anything to get further south, unless my object were to grow peaches. I believe we can grow as much of any other kind of fruit here as any where, unless it be in the Ozark Mountains or beyond, and we are as near to an extensive

market in the northwest as any competitors. There is a wide opening for small fruit growers for home market at almost every town in Missouri, though most of them seem contented to get a few cases of surplus stock from the cities, or some buckets full of strawberries from some garden. We get better prices in such a market than any of the commercial growers net in St. Louis or Chicago, and our customers are served better and cheaper; so much so that every family in this town puts up all they need or can afford for the year, as cheap as they could buy it in the store, and very much preferable to them. Yours truly,

CHAS. PATTERSON.

FARMLESS FARMERS.

HOW AND WHERE THEY MAY OBTAIN CHEAP LANDS AND HOMES.

To the Editor of the Kansas City Journal.

I want to say a few things through the columns of your widely circulated and influential paper about cheap lands in south-central Missouri, and I want to say to them, particularly to small farmers—farmers with only \$200, \$300, or \$400 in cash, or its equivalent, and with an average quantity of brain and brawn, which they are inclined to use. I want to show them, as briefly as possible and as convincingly as I can, that cheap homes are within their reach in the section I have named, and that the rewards for their investment here and their industry are infinitely greater and surer than they are on any cheap lands in Western Kansas or Nebraska.

The cheapest lands are government lands, subject to homestead entry and obtainable at the government price of \$1.25 per acre. Along or near the line of the Memphis route, in Douglass, Wright, Texas, Howell, Ozark, Oregon, Shannon, Carter and Ripley counties, there are to-day nearly 500,000 acres of this land, and this, of course, is the cheapest ob-

tainable. Then come lands which have been improved more or less, and which may be bought for \$1.50, \$3, \$5 and upwards per acre. There are thousands of acres of such scattered throughout the counties named. As I have no cheap lands in Missouri for sale, I shall speak generally of the country on this, the sunny side of the Ozark mountains, and refer the reader who wishes detailed knowledge of lands in this or that county, to know how to reach them, how to procure them, together with kindred information, to the passenger department of the Memphis route at Kansas City, Mo.

Let me first ask the stranger who visits this section to get off his train every ten or fifteen miles and spend a day or several days in looking at the country on both sides of his line of travel. In this way, and in this way alone, he will learn that southern Missouri is not a great mountain fastness; that it is not a stone quarry; that it is not an impenetrable forest; that its red clay soil is not worthless by a large majority; that its numberless streams of clear, running water are not without their complement of fishes, and that among her citizens there are many not wanting in thrift, enterprise, intelligence, general information, morals and the observance and enforcement of the laws. The strangers who thus investigate this wonderful country will not have spent their prospecting money in vain, and, were I disposed to gamble, I would offer odds of two dollars to one dollar that, after such investigation, the majority of them would at once become the owners of cheap homes in and, ere long, citizens of grand old Missouri.

This country banks—I mean this literally—a great deal on its climate. The long autumn has just cleverly begun. The crops can be properly harvested. Much work will be done in the fields for next year's planting. Stock will thrive in the woods and pastures until Christmas. Then six weeks of cold weather will follow. In that period the maximum snowfall has seldom exceeded three inches and the thermometer has seldom indicated the zero mark. Blizzards, so common in the same latitude in Kansas, are unknown. Next comes our early spring-time, and while our stock is fattening on the early grasses, the farmers on the cheap lands of the Sunflower State are still feeding theirs, or seeing them starve to death for want of grain or hay. The heat of our summers is not so oppressive as it is in even higher latitudes, and the hot winds which crisp and blight all vegetable growth in western Kansas, never molest us here. Our annual rainfall is ample and generally seems to have a way of falling when it will do the most good. The poor farmer, Kansas bent, should note these facts well.

Suppose a settler should come here now, and, after buying a piece of land which might consume nearly all his ready capital, where and how would he live until he could produce something? Let me tell him. This is not a treeless waste, like western Kansas, nor yet like it where the poor man may do nothing during the winter season but consume what he has produced in the summer. Here he will find on his own land timber sufficient in size and quantity to build a log house and a log stable. These will serve admirably until he can turn around or until he can afford something better. This will answer the "where" of the question. Then with his team and a pair of willing hands he could find steady employment through the mild winter, at fair wages in the lumber camps, at the quarries, in the mines, or in half a score of other convenient places. This settles the aforesaid "how," and by the time the frost is out of the ground he will be ready to go to work on his own place, with a cash balance materially greater than it is now. No, indeed, this is not a country for a poor man of leisure, or for the man of small means who is afraid of work. Every county down here now has a coroner, and the only business these officials have is to gather such men and plant them deep.

This is no great corn country. An acre of ground can be depended upon, however, to produce from twenty-five to thirty-five bushels. This is not fifty to seventy-five bushels, but, as Mercutio puts it, "'twill serve." In fact, it is ample to get mast fed hogs in prime condition for the market, keep our horses through the year, and our cattle through the short winter. And here we challenge any stockman of the famous corn belt to show as great a net profit from his lands as we can show from ours. I want to emphasize this point by saying that no other cheap land country in the Union offers so many inducements to the humble beginner in stock raising as this does. Wheat of an excellent quality, and oats, are grown here in sufficient quantities to supply home demands. Millet makes an excellent crop; timothy and clover do well, and blue grass, sown on sparsely covered timber lands, soon gets a good set and flourishes as luxuriously as it does in the famous blue grass region of Kentucky.

The leading native grass is a blue stem, which is very valuable for pasture and feed. The existence of this kind of grass speaks volumes for the soil in which it grows. Tobacco has not as yet been extensively cultivated here, but enough has been grown to show that its raising on a large scale would be profitable, and that its quality is second to none produced in other parts of the United States, the best of Virginia tobacco not excepted. Potatoes and all other garden crops are sure, yield bounteously, and in themselves are almost sufficient to keep the wolf from the door of the even half-way industrious man. The man who

cannot live here comfortably, and, in a comparatively, short time accumulate a competency, could not live or get ahead in any country--does not deserve a living, and will find no congenial welcome here.

But this country is pre-eminently the home for the stock-raiser and the fruit-grower, and as I have already given some attention to the former, I will now say something of the latter. Fruit is not a luxury. It is a necessity. It is not for the farmer or rich alone, but for the poor of the cities as well. California, New York and Michigan fruits are too expensive for the latter to use freely. What, then, is to be done? Seek, in the heart of the Mississippi valley, a fruit belt capable of being developed into the great, great American orchard. You will find it here in the Ozark fruit belt--a region so long and so strangely overlooked--a region which, twenty years hence, will be the home of King Fruit in the United States. Take your map and see the cordon of great markets on all sides of it. It is within easy distance of Chicago, Cincinnati, Louisville, New Orleans and scores of other cities of scarcely less importance. It is only a night's ride from Kansas City, St. Louis and Memphis, in other words, within reach of 30,000,000 people. But let me submit other testimony than my own. "Your soil (the Ozark fruit belt is referred to) produces smoother and larger fruit than New York or Michigan," says Mr. Louis Erb, a well known commission merchant of Memphis, Tenn. "The flavor of Missouri fruits will make them favorites in any market," awarding committee of the New Orleans exposition. "Missouri orchards have fewer pests than California orchards," President J. C. Evans, of the Missouri State Horticultural Society. Mr. Smeltzer, a prominent commission merchant of Kansas City, writes under recent date: "The finest peaches in this market this season are from Howell county. I bar out no competitor, not even California, and I take into the account size, appearance and flavor." Mr. L. A. Goodman, the conservative and efficient secretary of the State Horticultural Society, wrote as follows to Missouri friends from California, under date of February 20, 1888: "If I were going into the fruit business to-day I should go to some good point in Missouri, where you can buy good farms at from \$5, \$10 to \$20 per acre, and plant 40 acres, 80 acres, 160 acres of apple trees of desirable market varieties, such as Jonathan, Willow Twig, Ben Davis, and make more money on the investment than you will to go to California and grow oranges. This is pretty strong, you say. Well, so it is, but I believe it; not that I am dissatisfied with California, for I am charmed and delighted and should delight to live here if I could. But what I want to say is that the opening for good, systematic apple orcharding on our cheap lands of Missouri will pay a greater per cent. on

the investment than will the same in California, and it will not take half the money to begin with, either. But plant enough to make it an object, and get all your neighbors to plant two or three or four good market varieties of apples and take care of them, cultivate them and don't starve them or choke them with crops, and my word for it, it will be the best investment you ever made."

Missouri horticulturists have the courage to act on their convictions, and many of them are engaging in the business with commendable vigor and on a large scale. Up at Olden, in this, Howell county, is a notable instance in the Olden fruit farm, containing about 2,700 acres. The first improvements were made there four years ago last spring. At present nearly 600 acres have been planted in peach, apple and pear trees, and in small fruits. Eventually the entire tract will be an orchard. The owners of this orchard are already reaping rewards. From June 15 to September 15, of this year, their average daily shipment of peaches was nearly 200 boxes.

Near this farm is an extensive vineyard, owned by a Chicago gentleman. The wine made from his grapes is superior to that made from Kelly Island grapes. He expects to colonize his lands in this county with about 300 families from the wine producing districts of Germany. It is not improbable that the vineclad hills of France and sunny Italy may soon have a powerful rival in South Central Missouri.

But this communication is too long already, and so I'll stop, merely reminding the reader that further information respecting this country, will cheerfully be furnished by calling on or addressing the Passenger Department of the Memphis route at Kansas City, Mo.

A. D. B.

WEST PLAINS, Mo.

ALONG THE LINE OF THE 'FRISCO.

FRUIT INTERESTS IN SOUTH MISSOURI.

In order to have extensive, successful and profitable fruit growing, there must exist favorable conditions in soil, altitude, temperature, etc., also good facilities for transportation to a reliable market. South Missouri has all this. Nature has given the first, and the latter is furnished by the 'Frisco and K. C., S. & M. R. R. This road, from K. C., the great distributing point for all northern and western markets, leaves the coal fields of Kansas at Arcadia, runs with an "up grade" from Lamar, in Barton County, through Dade and Greene to Springfield, the summit of the Ozark range, thence east to south across Greene, Webster, Wright, Texas, Howell and Oregon, leaving the state of Missouri at or near Thayer and Mam. Springs and on to Memphis and thence south to the Gulf States. These counties and adjoining lands on either side constitute a wonderful plateau on top of the Ozark Mountains, from the Kansas line, well on toward the Missouri river. About one-half of Barton, Dade and Greene, is smooth, beautiful prairie, with deep, productive soil, and devoted to agriculture mainly. The apple is being liberally planted and coming into successful fruiting in Barton and Dade. In Greene there are thousands of acres of full bearing orchards from which large crops of excellent fruit are shipped out west and south annually. The utility and profits of the enterprise have been so well and satisfactorily tested here that hundreds of acres are being annually planted in all the country near Springfield, on and near the railroads—two trunks and their branches.

Southeast of Springfield these lands are nearly all timbered, which is better.

Webster and Wright, with Douglass and Christian joining on their south, and Texas on the northeast, abound in cheap timbered lands admirably adapted to fruit growing, which is apparent to every well posted horticulturist who has had a look even from the car window. But

further proof is afforded by bearing orchards at many points along the way. At Cedar Gap, in Wright County, the highest altitude of the entire range is reached, 1,800 feet above sea level. We commend the good taste, wisdom and enterprise of Col. Erb, of Memphis, in his selection of this point for a summer resort for his family and select friends. It is most romantic, wild and captivating in the scenery of its wide surroundings, and atmosphere as pure and clear as their drinking water from his spring in the park, which he has named "Cassano." Mr. Erb, to wed business with pleasure, has planted a fruit farm of 200 acres, to be still enlarged. He has recently purchased here the Lake View fruit farm, planted by Capt. Foote. This he is enlarging and otherwise improving. Mr. E. so possesses the elements of success as to leave no doubt of the influence of his example upon those who will, wisely, soon follow in the fruit enterprise on these high lands.

From Cedar Gap south-eastward, we realize a gentle slope toward the "Father of the Waters" yet far away. We enter Howell County at its northwest corner and pass out at its southeast corner, at the head of Spring River, in Oregon County. We are now in the peach belt proper. The peach is grown with profit on all the Ozark range, but this south-eastern slope is destined, soon, to be termed the peach belt, or "peach fields" of Missouri. From the first settlement of these counties, peaches of excellent quality grew accidentally inside of almost all enclosures. This was very suggestive, and it is now proposed to make Howell the banner county in peach culture. The apple also succeeds here to perfection, and so of all fruits, common anywhere within the Temperate Zone.

At many points in Howell and Oregon, experienced fruit growers have entered into the business with such good faith, energy and system, as to prove already that the necessary conditions naturally exist here. Such are not only making valuable developments for others to use, but are slowly, almost unintentionally and surely writing horticultural history and record for this country, soon to be read and known extensively.

The largest enterprise of this kind is near the center of the county at Olden, by the "Olden Fruit Company," who are devoting 2,500 acres of selected land in a body on both sides of the railroad, to fruit growing. The tract is enlarged as opportunity occurs and is being subdued and systematically planted as fast as it can be done well. Every year thousands of trees are added and all kept under good cultivation. Apples are planted largely and pears freely, but the peach most largely, of which, in its best varieties, about fifty thousand trees are already growing and as many as half that number fruiting satisfactorily.

Twenty to thirty acres planted to the various berries, are in full fruiting and could not be better. This Olden Fruit Farm at its present youthful state, in bloom or under a crop of fruit, is a lovely picture—a grand show of success demonstrating the fact of all I have stated and more than I could say of the wisdom, of the selection just here, and the admirable adaptation of all the adjacent country in this southern slope of the Ozark Mountain to profitable fruit culture. These gentlemen of the Olden Fruit Company, with ample means, business skill and horticultural knowledge, as a matter of paying business, have invested wisely; but a plant like this has a much larger utility for the general horticultural public—it is a benefaction for all Howell County and all the hill country of South Missouri, so without the aid of a prophet, it may be now safely guessed that in a few years, as mineral regions are given up to furnaces, smoke and cinders, so will these Ozarks of South Missouri be given almost wholly to fruit farming, whose products will find quick transit and a ready market in the western cities of the plains, in the hungry, sunny south and in the cold, fruitless regions of the north, while by car loads whole packages of the best shippers will go to Europe and elsewhere. The canneries and evaporators will exist in numbers ruled by the amount of surplus fruits to be worked into best keeping shape for long voyage and sure sale when wanted most.

The practicability of fruit growing in South Missouri has ceased to be a problem. That is fully solved, and the rapid growth of this industry into very large proportions is only a matter of short time.

D. S. HOLMAN.

Mr. L. A. Goodman:

Your request to state the advantages possessed by the counties in Missouri traversed by the Missouri Pacific and the Missouri, Kansas & Texas Railways has been received. In reply will state that I am poorly qualified to do this subject justice, which I regret, but by the assistance of the gentlemen whose names will be found below, together with personal observations made from time to time, I think I can point to some of the advantages possessed by this section. Hannibal, the northern terminus of the "Katy," lies exactly in the southeastern corner of Marion county, on the Mississippi river, and, therefore very close to the

northeastern corner of Ralls county. It is safe to say that no two counties in the state lying in their latitude are better adapted for fruit-growing, and few so well.

While a great portion of these counties seem to have their "backs up," so to speak, and some of their apple trees growing on the bluffs might have their fruit gathered with an ordinary ladder on one side of the tree, yet you would need one about five hundred feet tall to reach from the ground to the top of the tree on the other side. Still it is doubtful if there is an acre of ground in either so situated as to raise any other crop, but would also raise some of our fruits more profitably than anything else that could be planted on them.

I herewith submit letter from Mr. W. E. Flanders in regard to fruit-growing in Monroe county, which will be found interesting:

PARIS, Mo., January 28, 1889.

F. G. Kinder, Secretary, Nevada, Mo.:

DEAR SIR:—Your letter to postmaster here was handed me to answer. Monroe county has about an equal amount of prairie and timber land. The prairie is mostly black loam, the timber land light loam. The timber land is the best adapted to fruit.

Apples are a successful crop; pears do well, also plums and cherries; peaches are a failure; grapes do well.

Strawberries and all other small fruits succeed finely. All varieties of apples adapted to Missouri do well here. The Bartlett, Flemish Beauty and Duchess pears; Wild Goose and Miner plums, and Early Richmond cherry are the most reliable varieties. In grapes nearly any kind does well.

Yours truly,

W. E. FLANDERS.

I herewith submit report on Randolph county from Mr. Chas. P. Baender, of Moberly, which presents her advantages better than I possibly could do:

MOBERLY, Mo., February 4, 1889.

F. G. Kinder, Secretary Vernon County Horticultural Society:

DEAR SIR:—Your letter of enquiry to postmaster here has been handed to me for answer, which I will undertake, however, with trepidation, knowing my inability to write for the public.

This town (Moberly) is situated on the Wabash Western and M. K. & T. Railways. It is the highest point between Kansas City and St. Louis, located on rolling prairie on the edge of timber. We have a population of 10,000.

Moberly has the largest shops on the Wabash line, employing about a thousand men. We have water works, electric lights, sewerage and the best schools in the state outside perhaps of St. Louis, Kansas City and St. Joseph. It is a railroad town and you will see by this that we have as good a market as any in the state; as to prices, the best.

The demand for fruit and produce has never been supplied, except with apples and green vegetables. In 1887 I sold my pears very readily for \$5.00 per bushel, and the past season, while everything was plentiful, I got for the bulk of my pears \$3.00 per bushel wholesale; for many to private families, \$4.00. Cherries are very scarce in this market, except the common Morello, which always sells at 25 and 30 cents per gallon wholesale. Good cherries, such as Ostheim, English Morello and Bell would sell for 40 and 50 cents. These three, with Late Duke, are the boss cherries for this section, being very hearty and bear heavy crops every year.

All small fruits are a success. Gooseberries and currants always wholesale here for 25 and 30 cents per gallon. I always get 60 cents for raspberries per gallon. Strawberries bear enormously, and apples are always of best quality.

Our soil, both prairie and timber, is a clayey loam with clay subsoil. We have fine sand and lime rock adjoining town.

Our shipping facilities are extra good, having five roads centering here, giving us straight lines to St. Louis, Chicago, Omaha, Ottumwa, Kansas City and south, clear through to Denison, Texas. All without changing cars for both passengers and freight.

This section is as healthy as any in the universe. Society is the best, being of a cosmopolitan caste. Churches we have two German, one Methodist and one Lutheran. English speaking churches are three Methodist, two Baptist, two Cumberland, one Christian and two Catholic.

Four public schools and two Catholic.

Good well improved farm land within three miles of town sells from twenty to fifty dollars; further off, twenty to thirty dollars; unimproved from ten to twenty dollars.

Climate good, being exempt from blizzards they are enjoying farther west.

I forgot to mention the peach, which has failed for several years, owing to some severe spells in winter.

Altogether, this is about as good a territory for the horticulturist and agriculturist as can be found anywhere. Yours very truly,

CHAS. P. BAENDER.

P. S. All varieties of grapes do well.

Passing south and west from Moberly you enter Howard. This is one of the Missouri river counties, and is mostly timbered land.

Nothing that I could say, could add to the reputation of Howard, as a fruit growing county; her admitted and recognized position, if not in the lead, is so near it, that no one would ever make a mistake in locating here, if desirous of growing any of the fruits of this latitude. And what may be said of Howard can also be said of Cooper, the county lying next south and south of the Missouri river, and the same character of soil and general conditions also exist in the Northeastern half of Pettis county, lying to the south and west of Cooper.

BOONVILLE, Mo. February 13, 1889.

Mr. J. G. Kinder, Nevada, Mo.:

DEAR SIR:—I returned from my trip west and now will, in part, answer your letter of Jan. 25th.

In making out your report, especially for Cooper and Howard counties, you may truthfully say, that climate, location and soil, truly entitles them to be the banner apple counties in the state. I get my information from what I know from buying apples in the various parts of the state, and I know if our farmers only would pay more attention to planting the right varieties of apples, and take care of the trees, that I would rather have the gain off of the average acreage of apples in Cooper county than any county I know of. From the map you will see how the M. K. & T. comes through our county, and on account of the Missouri Pacific from Tipton and from Lexington it gives us good shipping outlets, especially as soon as the Missouri Pacific will be completed from here to Jefferson City (main line of Missouri Pacific Railroad).

You may say that one firm (myself) shipped from Boonville last fall over 17,000 barrels of apples; and that we to-day have not one acre where we should have 100. Furthermore, land is cheap in Cooper county as compared with other old settled counties, ranging all the way from \$10 to \$50 per acre.

We have plenty of good timber, only about half of the county being prairie. Furthermore, we have plenty of water, and all sorts of minerals, coal, building stone, etc. One mine, four miles west of Boonville, has now a shaft into solid cannel coal of forty-five feet. Concerning Howard county please write to R. T. Kingsbury, Estill, Mo.

Yours truly,

CHARLES C. BELL.

Passing through Henry the railroad just touches the Northwestern corner of St. Clair county and the Southeastern corner of Bates. Both of these counties have well established reputations for fruit growing, with perhaps St. Clair slightly in the lead. This, however, is because of more timber growth, with the consequent sheltering influence, than from any other cause.

The writer has seen old, healthy looking peach trees in this county quite twelve inches in diameter at the stump, showing that though there might be severe seasons sufficient to destroy the fruit buds, still not severe enough to injure the trees. Passing out of Bates county you cross the Osage river, and you note a very great change in the general character and lay of the land. From the Missouri river to the Osage the limestone rock is observed cropping out. After emerging from the low bottoms of the Osage only sandstone is seen; and now let your eye wander from east to west, from the north to the south, and here before you lays as fair a land as ever God's sunlight gladdened, with gentle undulations, one succeeding another. Naturally drained, with not an acre in sight for forty miles that is not perfect fruit land. This is Vernon county. I trust I may be pardoned for telling the whole truth about my own county, if from ignorance I have refrained from doing justice to others. But, from long observations of fruit interests in several states, I unhesitatingly pronounce Vernon county the best fruit section I have ever seen. If there has ever been a failure in growing any of the different fruits indigenous to this latitude, except by negligence or an injudicious selection of varieties, the writer has not learned of the instance.

Apples, Pears, Cherries, Grapes, all the small fruits, until the past few years Peaches and Plums. In fact any and all have been grown successfully when attempted with intelligence and perseverance, and at a greater profit to the grower, than has ever followed the planting of grain in any county. With railroads accessible to nearly every portion of the county, it does seem to me that it is not worth while to commence planting orchards anywhere else, so long as Vernon has any space unoccupied. Nevada, the county seat, is planted al most in the geographical center of the county, a bright sparkling gem in a magnificent setting. For fear that my readers might think I am exaggerating, I force myself to cease, with endless words of praise unsaid. But will say that, for about twenty miles South and West from Nevada, the railroad is privileged to traverse the hills and vales of Vernon, when all of a sudden the M. K. & T plunges head foremost and heels over head as it were, into the Great American desert. I am told that eventually she emerges again somewhere down in the Indian Nation. But I will follow her no further. You

would not, I am sure, have me encroach upon the dearest privilege of the average Jayhawker, and throw away more ink in a cause that has already consumed oceans of it, so I will bid my readers, good bye.

Yours fraternally,

J. G. KINDER.

THE MISSOURI PACIFIC.

From St Louis to Kansas City, Mo., through the rich Missouri valley for many miles north and south of that great river is the finest body of rich farming land, for all purposes, in all the world. For beauty, fertility, variety of crops and general healthfulness, it cannot be surpassed anywhere. Rich in all natural resources requisite for human comfort and prosperity. Lands of unsurpassed fertility adapted for the production of grains, grasses, fruits and vegetables of all kinds. Corn and wheat from the Missouri valley are well known both in quantity and superior quality. Fruits grown here rank highest, and especially for profit. The apple (the king of all fruits) stands prominent and unexcelled. Especially is this more apparent when we consider the price of lands, and our markets to supply. The rich blue grass pasture lands are unsurpassed, and the large herds of high grade horses and catt'e give proof that for fine stock Missouri leads even the far famed Kentucky Bluegrass State.

Aside from the unexcelled agricultural and horticultural possibilities, abundance of good water and timber, with a mild and healthful climate, Missouri is equally rich in minerals and coal. Mining, however, has received but little systematic attention. However, developments made warrant the prediction that Missouri, in the near future, will be the Pennsylvania of the west.

Among the various railroads traversing the state, the Missouri Pacific, with all its branches, passes through the richest portion. Its main line from St. Louis to Kansas City, reaches from the Mississippi on the east to the Kansas state line on the west, a distance of 283 miles,

passes through the counties of St. Louis, Franklin, Gasconade, Osage, Cole, Moniteau, Morgan, Cooper, Pettis, Johnson, Cass and Jackson. Its branches extend south of St. Louis through the southeast part of the state, and along the Missouri river through the famous counties of Cooper, Saline, La Fayette, Jackson and as far north as St. Joseph, in Buchanan county. Also through part of that rich portion known as southwest Missouri, comprising the counties of Jasper, Barton, Vernon and Bates.

Large volumes describing the richness, natural advantages and superiority may be written of that part of Missouri traversed by the Missouri Pacific railroad, and much would be left untold. Suffice it to say that it represents the choicest parts of the state. And great old Missouri stands to-day, with her untold riches and natural advantages, as the best and grandest state in the Union.

The horticultural interest, which is yet in its infancy of development, must some day become a leading feature of Missouri's greatness. Lands suitable, can yet be purchased for prices to suit all, ranging from two dollars per acre upwards, according to location ; and there is nothing that will surer reward both capital and labor as the planting of large, commercial apple orchards. Hundreds of thousands of barrels of apples are shipped out annually—and if of the right varieties, all (and many more) can find ready and paying markets ; and with our present railroad shipping facilities and new railroads, prospective, with the rapid growing southwest, west and northwest to supply, we shall never see the time when commercial apple growing in Missouri shall fail to be profitable.

C. C. BELL.

BOONVILLE.

THE IRON MOUNTAIN RAILROAD REGION—SOUTHEAST MISSOURI.

BY A. A. BLUMER, OF FREDERICKTOWN, MO.

The magnificent fruit show made in St. Louis in 1888 must have convinced the most incredulous and skeptical that Missouri is really the garden of the United States of America, exclusively, without fear of contradiction. Do you not except California? I do not. That state of land monopolists, with the *coccus oloe* on the olive trees and *coccus esperidinus* on the citrus family, cannot produce an apple or a pear so exquisitely flavored as those of Missouri. Grape is the only fruit California can boast of, when freed from the phylloxera, which fetch no higher price in market than those of Missouri.

Why has population gone through in lieu of settling into so inviting a state? Because of slavery; that was the curse. See the stream of immigration that has poured into it since its suppression! Is that not significant? The immediate future of this grand state will be still more astonishing for a state located in a mild and salubrious climate, frugiferous soil, with such a variety of resources, many of which it equals and in many others excels the most favored state, cannot but be attractive to the seekers of a comfortable home. But our task being confined to the adaptability of the Iron Mountain region to fruit growing, we will try to give a brief and succinct account of its prospect and resources for growing fruit.

Leaving St. Louis southward the first county we come to is Jefferson, situated on the bank of the Mississippi river. One-third of its area is rich alluvial soil, chiefly devoted to cereals. The uplands seem to possess rare fruit growing qualities; apples, pears, plums, cherries and all kinds of small fruit seldom fail; grape growing and wine making is a growing and lucrative industry long established.

This county is well timbered, well watered by the Merimac, Big river, the Joachin and Plastine rivers, besides many springs and creeks.

The developing of its mineral resources, its mines, furnaces, its ten flouring mills, plate glass, cheese and agricultural implement factories

afford, besides St. Louis, a good home market for all kinds of produce, good bridges and roads. Improved land ranges from \$15 to \$50 per acre, but the upland unimproved, which is the best for fruit, can be bought from \$5 to \$10 per acre.

WASHINGTON COUNTY.

This county has a high and broken character; it is mostly covered with pine trees; has a very productive soil, well adapted to all kinds of fruit, especially grape; numerous streams and springs of clear limpid water abound, its mines, furnaces, twelve grist mills, fifteen saw mills, tanneries, and in spite of numerous orchards and vineyards, found here and there, the supply is inadequate to the demand, especially for watermelons, which can be easily raised in the rich soil mostly composed of detritus.

The land is yet cheap and offers rare inducements to immigrants seeking a mild and salubrious climate, promising a sure reward to fruit growing.

This county has 22 miles of railroad, besides a branch connecting Potosi, the county seat.

ST. FRANCOIS COUNTY.

This county like the preceding one is hilly and broken; its scenery extremely romantic; Big river, Flat river and St. Francois river, besides many creeks, run through it; plenty of timber. The Iron Mountain and St. Joe mines employ many thousand men and it is surprising to see St. Joe and Bogy-town, with a population of about 7,000 souls, draw fruit and vegetables from St. Louis. Yet there is plenty of unimproved hilly land, just the one best adapted to fruit growing, which can be bought very cheap. The few orchards and vineyards found here and there bear the best of fruit. How long this chance will last is hard to tell; so long as men want to make a fortune in one day, by trying to find out new mines, so long will this last. Any industrious horticulturist with a will and a little capital would find here a surer remuneration for his labor.

[MADISON COUNTY.]

Like the other counties its surface is hilly and broken; the bottom lands along the rivers and creeks are of an excellent quality; corn, wheat and oats are raised thereon and watermelons thrive admirably.

Uplands or flat woods, besides the cereals, produce the finest apples, pears, plums and cherries to be seen, as well as grapes; all kinds of small fruits do equally well.

Southeast of Fredericktown, the county seat, many orchards and many an acre devoted to strawberries and other small fruits always reward the horticulturist with abundant crops and prove the adaptability of this soil to successful horticulture; why this most profitable branch is not extended is beyond conception; they do not care.

This county is well watered by rivers and creeks, has the finest timber; its climate mild and healthy, short winter. The chain of the Ozarks screens the county south to southwest.

Probably nowhere can land be bought so cheap as in this county, although no better soil can be found for all kind of fruits including the grape.

Well improved farms can be bought from \$10 to \$25 per acre; unimproved land from \$2 to \$10 per acre. The Iron Mountain railroad runs through 23 miles of this county.

BOLLINGER COUNTY.

Surface hilly and broken; valleys of rich soil; level lands on top of the hills; well timbered and well watered by rivers, creeks and springs. Five flouring mills, wool carding machine, blacksmith and wagon shops, and a few tanneries include all the improvements of this county. Improved land can be bought from \$5 to \$15 per acre. About one hundred thousand acres of the best fruit land can be bought from \$2 to \$5 per acre. All kinds of fruit succeed admirably, never fail. This county needs industry and capital to develop its great resources and to occupy a prominent rank in Southeast Missouri.

MISSISSIPPI COUNTY.

This county, opposite the mouth of the Ohio river, is level bottom land, some prairie and some timber; its rich, warm soil produces the finest melons to be found anywhere; strawberries could do as well.

This county is almost surrounded by the Mississippi river; the James Bayou runs through its center, but could easily be drained.

This county includes 253,440 acres of land; about 40,000 are improved; this last sells from \$8 to \$15 per acre, unimproved from \$1 to \$2 per acre.

RECAPITULATION.

Every county on the Iron Mountain railroad, except the last named, present great attraction and inducement, rarely found elsewhere to immigrants and movers, especially to fruit growers; a mild and healthy climate, short winters, free from blizzards, cheap land, a close and handy market, good society, kind and hospitable inhabitants, excellent graded schools during nine months of the year, churches of all denominations and flattering prospects for future enhancement.

THE HANNIBAL & ST. JOSEPH RAILROAD,

Connecting Hannibal on the Mississippi river with St. Joseph on the Missouri river, traverses the following counties: Marion, Shelby, Macon, Linn, Livingston Caldwell, De Kalb, Clinton and Buchanan. These nine counties are mostly prairie, much of it level, but on either side of all the streams is a scope of rougher country covered with timber. Especially on the timbered part of this region, fruit, particularly the apple, does quite well. Along this line there are 34 stations, and it has numerous branch lines. Apples of fine quality are grown and are shipped in large quantities from nearly all stations on the road. In 1888 there were shipped from Macon City forty-three car loads, which were sold at 35 to 50 cents per bushel; and sixty car loads were sent from other points in Macon county. A good deal of interest is taken in fruit-growing in this county.

Chillicothe, in Livingston county, in 1888, shipped 100 car loads of apples. There is quite a growing interest in fruit-raising in that county, and good orchard land sells at \$20 to \$50 per acre. Many other stations, and perhaps each of the other counties of the nine, could make as good a report of shipments; but reports have not been received in time for this paper.

The Kansas City, St. Joseph & Council Bluffs Railroad, starts from Kansas City and runs in a northwesterly direction to Council Bluffs. This road is all the way on the bottom lands of the Missouri river and nearly always just at the base of the hills. These hills are

built on older formations, but the loess or bluff formation gives character to the soil of all this uneven and timbered region. This hill country is from one to five miles wide, and the bottom lands are about the same in extent. The main line is 137 miles long, and on it are twenty-seven stations. The Nodaway branch of this road connects at Bigelow and runs northeast into Iowa. On it are four stations.

The Tarkio branch connects at Corning, having on it four stations. It leads north into Iowa.

The Hopkins branch connects at Amazonia, also running north into Iowa. It has seven stations.

This bluff formation, all along the main line, is "the best of all soils." It consists of marl beds, varying from 50 to 150 feet in depth, and is of equal fertility throughout. The formation is perforated with peculiar tubes from the surface to the foundation, connecting often with each other, and in the language of Prof. Swallow, "constitute the most thorough system of drainage imaginable." To illustrate the completeness of this drainage the fact may be mentioned that here ice is kept during summer in pits ten to twenty feet deep, not even lined with boards, but simply covered over and yet is never troubled with water, its meltings being completely removed through the tubes and the porous, peculiar soil.

This formation is exceedingly fine, light and mellow, and is full of all the elements required to sustain vegetable life. It is very friable, and there is probably no soil in existence that under the plow becomes more loose and mellow, yet from its superior under-drainage it handles well very soon after even a heavy rain.

Professor Swallow describes this soil, as a "fine pulverulent, absolutely stratified mass of light grayish buff, silicious, and slightly indurated marl, its color usually variegated with deeper brown stains of oxide of iron." These stains of discolorations are caused by an impregnation of the marl with oxide of iron, aluminum and carbonate of lime, while the walls of these tubes are composed of calcareous clay iron-stone. Prof. Swallow says that in this formation rest the very best farms of the Missouri Valley, sustained by a soil of absolutely inexhaustible fertilizing resources.

The great metropolis of Kansas City, with her vast railroad connections, and now a population of 200,000; St. Joseph, a railroad center with 100,000 inhabitants, Leavenworth, Atchison, Nebraska City, Omaha and Council Bluffs, with a number of other cities and towns, will furnish us a splendid home market for vast quantities of fruit, while our facilities for shipping by rail to all parts of the country are unexcelled.

Weston, Platte county, in 1888, shipped fifty car loads of apples, and two packers in the county shipped 1,300 barrels each. The interest in fruit-growing in this county is largely on the increase, and good land, ready for planting, can be had for an average price of \$30 per acre; while much just as good by nature can be had for less, and this within thirty miles of Kansas City.

Reese & Downey, at Iatan, Platte County, have about 200 acres in apple orchard, largely of Ben Davis; 115 acres of this is on Missouri river bottom land, the rest is on upland. Their trees are of different ages from four to fifteen years, and are doing well. Seven acres of this orchard are on bottom land, *black walnut* soil, and is mostly Ben Davis. The eighth year after planted, the apples from these seven acres sold for \$543; the ninth year for \$685; the tenth year for \$1,100; the eleventh year for \$1,500; twelfth year nearly a failure, and the thirteenth year for \$700.

In the season of 1888 there was packed in Buchanan County, including the City of St. Joseph, 160,000 barrels of apples, mostly Ben Davis, Willow Twig and Missouri Pippin.

St. Joseph has a population of 100,000, is a railroad center and a splendid fruit market; and yet good fruit land can be bought in Buchanan County at \$30 to \$40 per acre.

Amazonia, ten miles northwest of St. Joe, in Andrew County, in 1888 packed 7,600 barrels of apples, while other towns in the same county, on the Hopkins branch, have made heavy shipments. The interest in fruit raising in Andrew County is increasing; the farmers are learning that apple growing especially pays better than almost any other line of production.

Maryville, the county-seat of Nodaway County, and on the Hopkins Branch, shipped in 1888 twenty-eight car-loads of apples, and this represents only a small part of what was sent from the county. Nodaway is a beautiful rolling prairie and timber county—fruit land \$20 to \$35 per acre.

HOLT COUNTY.

There was shipped from Forbes Station, in 1888, twelve car loads of apples.

From Forest City, sixty car-loads.

From Craig, ten car loads.

From Maitland, on the Nodaway Branch, forty-one car loads of apples and five tons of grapes.

From Mound City, twenty-six car loads.

From Bigelow, eight car loads.

From Corning, nine car loads.

Nodaway Station, in 1888, sent away thirty car loads of apples, a large share of which were grown in Holt County, but most of them, probably, in Andrew County.

In Holt County, the interest in fruit growing, especially in the raising of apples, is rapidly on the increase. The county is not so famous for the very large size of any of its orchards, as for the number and the quality of its orchards of smaller size. Perhaps the largest orchard in Holt covers not more than sixty acres; but many men have planted each from 500 to 3,000 trees, and are giving them improved care and cultivation. Some of the best orchards on upland have brought their owners a net profit of \$100 per acre per year for the last three years, while a number of orchards on bottom lands are doing equally as well. Plenty of choice fruit land all along the range of hill country at five to ten dollars per acre for unimproved, and fifteen to thirty-five dollars for improved farms—mostly of forty or eighty acres each. Many places among the hills present beautiful and picturesque scenery. Holt County has had a live, wide-awake horticultural society for the last ten years, and its work is telling on the orchards, the grounds, and the homes of its people. There is better and better care and cultivation of all these.

Atchison, the northwestern county of the state, has a number of railway stations from which considerable quantities of fine apples are shipped by the car load. The price of fruit land varies from ten to thirty dollars per acre.

BROOKFIELD, Mo., March 4, 1889.

Mr. N. F. Murray:

DEAR SIR:—I have been doing my best to answer your kind letter of Feb. 5.

There are eleven railroad stations in this county, but I have not got the accounts from but a few of them, yet people are careless about matters of that kind, but I hope they will get a good waking-up at our meeting in June. Our part of Missouri is not so much advanced in fruit-growing as others near large cities. There is no very extensive fruit

growing near here, so we cannot say what it would do, but what is grown here would compare well with other parts. The price of land varies ; some land close to town sells from fifty to one hundred dollars per acre ; farm lands from twenty-five to thirty-five. The amount of apples shipped from Meadville, this county, last fall, was 1,788 barrels. If I can get the amount from other places, I will send them to you.

Yours respectfully,

JOSEPH GAMBLE.

INDEX.

A Few Items for Settlers	477
Agricultural Experimental Stations	457
Education	459
ADDRESSES OF WELCOME AT OREGON :	
H. T. Alkire	35
J. C. Evans, in Response	40
ADDRESSES OF WELCOME AT NEVADA :	
E. E. Kimball	174
J. C. Evans, in Response	179
Appointment of Committees	40, 193
ANNUAL REPORT :	
Of Secretary	114, 300
Of Treasurer	122, 309, 312
Annual Meeting at Nevada	172, 362
A Curb Stone Scene	430
A Public School Idyl	432
Banquet, Report of	171
COMMITTEE :	
Standing	5
Constitution of State Society	6
Correspondents and Members	7
On Awards	112, 233
On Fruit Show, Report of	151, 266
On Final Resolutions, Report of	171, 361
On Transportation, Report of	314
On Obituary, Report of	354
DO VARIETIES RUN OUT :	
P. Henderson	449
DISCUSSION :	
On Orchards	62, 76, 84, 139, 223
On Small Fruits	94
On Stone Fruits	97, 322

On Entomology.....	129, 323
On Grapes.....	299
On Fruit Show.....	312
On New Fruits.....	324
Directions for Sending Fruit to Washington.....	164
Election of Officers.....	315
Expenses of Fruit Show at St. Louis.....	305, 309
 ESSAYS :	
Home, Miss Anna Luckhardt.....	41
Value of Experimental Stations, Prof. L. R. Taft.....	44
Roadside Trees, W. R. Laughlin.....	51
Family and Commercial Orchards, J. A. Durkes.....	67
Cider and How to Make It, Harry Keene.....	75
Culture and Care of Apple Orchards, C. Shultz.....	82
Flowers, Mrs. Carrie O'Fallon.....	100
Wild Flowers, Miss M. E. Murtfeldt.....	102
The Rose, W. A. Long.....	109
Arrangement of Cut Flowers, Phil. Pfeiffer.....	136
Present Outlook, C. C. Bell.....	142
Best Horticultural Products, J. Kirchgraber.....	148
Poultry and Horticulture, N. J. Shephard.....	150
Hard Problems, T. W. Gaunt.....	152
Black Rot in the Grape, B. T. Galloway.....	157
How the Press can assist the Horticulturist, J. M. Hasness.....	165
Love of Flowers, Mrs. S. M. Livermore.....	180
Story of the Leaves, W. R. Laughlin.....	182
Care of Orchards, H. A. Ensign.....	201
Adaptation in Horticulture, J. Ames.....	204
Orcharding on the Ozarks, A. Nelson.....	208
Evaporating, J. B. Durand.....	228
Small Fruits, J. N. Menifee.....	230
Z. T. Russell.....	231
J. H. Logan.....	235
Sam'l Miller.....	238
Henry Schnell.....	240
New Strawberries, B. W. Speece.....	243
Beauties, Jesse Holloway.....	245
Horticulture, Willie Foreman.....	275
Floriculture, Mrs. G. E. Dugan.....	277
Going West, Prof. J. W. Clark.....	281
Grape Growing, J. G. Kinder	286
G. E. Meissner.....	291
A. Kibler.....	294
Peach Culture, W. G. Gano.....	318
Dr. E. R. Morerond.....	317
Tree Planting, Prof. M. G. Kern.....	344
Pleasures of Rural Life, Miss Kate Taft.....	348
Among the Flowers, Miss Mary Keeling.....	350
Social Feature, G. W. Hopkins.....	373
Horticulture as an Educator, J. A. Kennedy.....	375
Scientific Culture, J. G. Kinder.....	385

Our Fairs, L. A. Goodman.....	396
Language of Flowers, Mellie Watkins.....	401
Industrial Education, Gerald H. Dinger.....	403
Reminiscences, W. R. Laughlin.....	406
Our Best Grapes, L. Geiger.....	412
Evaporating.....	433
Elements of plant Growth.....	444
Fruit Resources of Missouri.....	478
Fun of Throwing.....	456
Farmers Institutes.....	306
Flowers.....	425, 429
Grapes.....	441
Horticultural Meeting.....	271
Hempstead & St. Joseph R. R.....	497
Kansas City, Fort Scott & Memphis R. R.....	480
St. Louis & San Francisco R. R.....	485
Introductory.....	33

INVITATIONS :

A. P. Crosby.....	169
G. W. Register.....	170
C. W. Muntfeldt.....	169
Iron Mountain R. R.....	494
Insects.....	417, 421
Letters and Items.....	306

LETTERS :

John Burr, Grapes.....	85
Wm. Schott, ".....	86
E. J. Schatz, Strawberry.....	93
C. H. English, Root Blight.....	130
A. S. Welcott, Quince's.....	131
S. P. Connor, Hindrances.....	132
Mrs. G. E. Dugan, Birds.....	133
P. J. Berkman, Nomenclature.....	135
F. Lionberger, "	134
Peter Dailing, Fruits.....	145
John K. Jr., Dried.....	146
M. Butterfield, Plums.....	167
Miss M. E. Muntfeldt, Plums.....	168
H. E. Van Deman.....	169
St. Louis Exposition.....	268
C. L. Muller, Peaches.....	340
H. L. Van Vickle, Apples.....	332
Prof. G. A. Weber, Weather Service.....	339
Prof. F. E. Nipher, Missouri Weather Service.....	340
B. F. Bush.....	369
Law for Appropriation by County Courts.....	400
List of Varieties of Apples on the Tables at Nevada.....	337
M. H.	452
Missouri a Fruit State.....	256, 467
Missouri Fruit.....	259, 263, 465

Miscellaneous Papers.....	363, 416
Missouri Pacific Railroad and M., K. & T.....	487, 492
Notes from South Missouri.....	363
Oregon, a sketch.....	422
Otchard.....	438
Plan of Kidder Station, M. G. Kern.....	395

PEN SKETCH OF PROF. C. V. RILEY:

F. W. Gooding.....	365
Plant an Apple Tree.....	429
Practical and Poetical Bird Life, Mary Holsinger.....	468
Plant Inter-Marriages.....	451

REPORT :

Missouri and California Fruits, Wm. Broadbeck.....	54
Fruits, Holt County, S. Blanchard.....	57
On Orchards, Chas. Patterson.....	64, 499
On Orchards, Henry Speer.....	66, 198
On Orchards, J. B. Durand.....	71, 214
On Orchards, Wm. McCray.....	72
On Orchards, J. M. Kelley.....	73
On Orchards, J. H. Logan.....	78, 80
On Small Fruits, J. N. Venefec.....	87
On Small Fruits, Sam'l Miller.....	90
On Small Fruits, Jacob Faith.....	138
On Small Fruits, W. M. Hopkins.....	92
On Stone Fruits, G. Segessemann.....	97
On Stone Fruits, G. W. Hopkins.....	95
On Entomology	123, 322
On Orchards, W. G. Gano.....	194
On Orchards, Jacob Faith	382
On Orchards, W. R. Laughlin.....	216
On Orchards, N. F. Murray.....	219
Of Secretary on Missouri Fruit Show.....	247, 275
Of Secretary, Annual.....	310
Of Secretary, Semi-Annual.....	114
Of Treasurer, Annual	309
Of Treasurer, Semi-Annual	122
On Apples from Agricultural College.....	327
On Report above.....	328
Bates County Society.....	147
Greene County Society.....	357
Jasper County Society.....	358
Mound City Society.....	360
Botany of Jackson County, B. F. Bush.....	370
Of Iowa and Illinois Horticultural Societies, Chas. Patterson.....	387
On Birds, B. F. Bush.....	389
Recipes.....	435
Stuff and Nonsense, Thos. Mehahn.....	447
Scientific.....	443
Stone Fruits.....	453
Sparrows.....	440
Strawberries.....	436
Semi-Annual Meeting at Oregon.....	33, 172
Transportation Association.....	285
The Railroads of the State.....	476
Utility of Exhibitions.....	462
What Others Say.....	417, 474

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